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ORIGINAL ARTICLES.

ON THE DEVELOPMENT OF THE CAUSAL TREATMENT OF TUBERCULOSIS.

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CHICAGO, ILL.

I will not state in this paper the whole history of this question, which at its first commencement excited so much enthusiasm, and later caused so much disappointment to all concerned. As one of the few observers, having published detailed reports on the question ("On the Causal Treatment of Tuberculosis," Hamburg-Leipzig, 1894), I may be justified in expressing my regret that so many of the works on this subject, mostly in Germany, are written in the obscure and abbreviated style possibly appropriate for "vorläufige Mittheilungen," but not for definite scientific work.

Robert Koch, in his first paper on "Tuberculin" (1890), showed the effects of this substance on tuberculous rabbits, but never gave later detailed accounts of his experiments. Everyone wishing to work on the subject was therefore obliged to find his way in the dark. Indeed, the preparation of tuberculin was not published for a long time afterward. Finding that the often dangerous effect of tuberculin shown by Virchow, Hansemann and others was effected by toxins, I tried to eliminate those substances which I found unnecessary for the undoubted healing effect sometimes observed in tuberculin treatment. While Koch would avoid the faults of his first treatment by giving very small doses of tuberculin, his pupil, Dr. Carl Spengler of Davos, declares that small doses are not efficient. He also finds that the feverish reaction after the injection will not be necessary for the healing process. He says, in his pamphlet ("Ueber Tuberculin Behandlung," Davos, 1897, p. 7), "the small doses recommended before oftentimes may bring some relief to some phthisics, but for definite healing they are not sufficient. On tuberculous infected animals which should die in eleven weeks, the small doses do not work at all." The last is a valuable confirmation of the efficiency of the tuberculin for healing purposes, this sort of infection being very slight if guinea-pigs are used.

These results of practical experience, emphasized in 1897, are exactly the same proclaimed by me in 1894 as the results of experimental and clinical work. If now Dr. Spengler has not words for stating this fact, he can not be excused on the ground of ignorance, as I conferred with him at length, before he migrated to the camp of Dr. Koch. He may be excused, as he follows the method of his master, and we shall see that the latter is responsible for the suppression of facts, as yet not known in the German scientific world. The latest publication of Dr. Koch, in the *Deutsche Medicinische Wochenschrift*, April 1, 1897, has provoked the very justified reclamation of Dr. Hans Buchner in Munich and his brother in Tübingen, regarding the preparation of his new tuberculin, the so-called TR. It has always been the custom in Germany, and I think in all civilized countries, to name the author of a method that one uses for a similar purpose. This conceded, we must ask if the Buchner method to procure the products of living bacteria by mechanical destruction of the cells can give substances more efficient for medical purpose, than the simple extracts made by watery or glycerin solutions of salt, acting on the killed bacilli? That will depend mostly on the agencies used for the destruction of life. I am very glad to hear, from Koch and Spengler, that they accepted my view that the cooking of tubercle cultures destroys a good deal of the healing substances. The substituted concentration *in vacuo*, for many years practiced in my laboratory, is the principle set forth in my book.

Spengler asserts that this new tuberculin of Koch, named TO (original "Tuberculin after Spengler" a somewhat curious expression for an improved tuberculin), gives higher febrile reactions than the former preparation. In consequence of the extreme danger connected with the use of such toxic products, it must be excluded from therapeutic use.

As I have shown in my book (1894), the action of the tuberculo-toxins lies in two directions, first in a depression of the heart action, shown by kymographic experiments on dogs and rabbits, animals much more resistant to the tubercular infection than men and guinea-pigs. I could also observe this same highly dangerous influence in tubercular patients, at first supporting the tuberculin treatment, but after some time showing very grave convulsions, probably effected by the impaired action of the heart. Further experiments on animals have shown me that these toxins have a highly cumulative action, probably due to the slow secretion of these substances. White rats, which are very resistant to tuberculosis, can be killed by this agent in thirty to fifty minutes under convulsions and cyanosis. I must emphatically declare that the TO must be rejected totally as a therapeutic agent.

The second deleterious action of these tuberculo-toxins is the local necrosis of the tuberculous parts, once held by Koch as the true healing action of his remedy. I have shown in my book that the tubercle bacilli develop rapidly in necrotic tissue, and have explained from this observation the rapid dissemination of tuberculosis after the tuberculin treatment. Regarding the cases observed in the pathologic institution of Virchow (1890 to 1891), it is difficult to understand how Spengler can suggest, in 1897, that these cases can be explained as a commencement of miliary tuberculosis preceding the injections. If he will reread the lecture on these observations, he will find cases in which the disease, before the treatment, never had a febrile character.

On this account I rejected the tuberculin treatment

and experimented to make the treatment innocuous by chemic elimination of the toxins. The tuberculocidin was the result of these researches, published in detail in my book. I stated that this substance not only killed living tubercle bacilli in the test-tube, but healed far advanced tuberculosis in guinea-pigs. In five years, hundreds of cases of human tuberculosis have been treated with very good results, in Europe and in this country. A milder acting form was the antiphthisin, which contains only substances taken from the fluid of the cultures—as I believe, mostly secretion products of the bacilli, toxic for its productions, but not for the human body. The good results of AP in very irritable forms of tuberculosis have been obvious; the killing power was demonstrated by experiments made in Asheville, N. C. (Winyah Sanitarium). With these two products of tubercle culture we had very good results, as reported in this country by a vast number of most reliable physicians, using more than 50 liters the last year.

I undertook during the last two years renewed experiments on the question of immunization in tuberculosis. In 1876 I had found some indications in my experimental work, that even in tuberculosis this property was not absent. New proofs were brought forth in my book (1894), but sharply criticised by one of my severest critics, Dr. Lubarsch, formerly my assistant in Zurich. As Dr. Lubarsch has himself worked on immunization, his criticism may have made some impression.

Later I published my experiences made in this country on this question (JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, July 25, 1896; *Centralblatt für Bacteriologie*, Nos. 14 and 15, 1896), and am satisfied that Dr. Koch built up his new theory on the same principle, but, curiously, not remembering my work. As to the clinical support of this view, we may say that the long period of latency of the disease, as well as the results of causal treatment, accord fully in this direction. Koch is now searching for immunizing substances in the tubercle bacilli, as I did before. His TR, the crushed substance of dry living tubercle bacilli, will have this power of immunization. How much must be given in proportion to the weight of the patient, or the quantity of immunizing or only organic matter contained in his TR, is not noted in his communication. In some of his animal test cases the immunization is not finished, in others perfect. We would be very grateful to hear the history of these experimental cases. Without that the proof is not so positive. The responsibility of the physicians will be sustained alone by the reputation of the author, not disputable in all bacterial, but somewhat doubtful in therapeutic questions, as shown by the tuberculin treatment.

The manner of preparation of the TR involves some questions that should be answered before the treatment with this substance could safely commence. Living virulent bacilli are crushed mechanically so long as no tubercle bacilli can be detected in the obtained fluid. The rest of the indissoluble substance should be very small, and the fluid perfectly clear or opalescent. The addition of 10 per cent. glycerin should be sufficient for conservation.

1. If living tubercle bacilli are crushed and extracted, it is to be feared that some of them will remain. That they can be wholly eliminated by the use of centrifuge is doubtful, as the fluid is by no means a true solution, but a gelatinous soaked-up mass. The precipitation by addition of glycerin, more than 10 per cent., noted by Koch, shows this clearly. In such a substance particles not much different in specific weight will not follow the centrifugal motion. Indeed, this substance contains, according to Koch, masses stainable by methylene-blue, consisting mostly of the bodies of tubercle bacilli freed from their fatty contents during the experiments. Are these bacilli, deprived of their fat, living or not? We do not know that and have no other means for deciding this question than the animal experiment, the infection. I have some reason for suggesting that in the living animal and in men tubercle bacilli are also present, which do not stain acid-proof with fuchsin, but stain after the method of Gram. The question arises whether the new TR will be tested in every animal experiment as to whether it is infectious or not?

2. For conservation of this fluid Koch adds to the crushed and centrifuged preparation 10 per cent. glycerin. But it is generally accepted that organisms grow very well in such a fluid. This is the more to be regarded as the manner of preparation does not guarantee the aseptic condition. The way of avoiding this difficulty should be published.

Experiments can only decide these questions, and they should be reported in a detailed manner. In these complicated experiments, in which the variability of animal life accords with the variability of microbic life and only one factor, the chemical product, can be made constant, without a greater number of scientifically varied experiments nothing can be decided. The whole material must be published, so that any one can judge from the evidence.

3. Lastly, we come to the comparison of the two existing methods for preparing immunizing and healing substances from the cultures of tubercle bacilli, the tuberculocidin and TR. Koch remarks in his last publication that the presence of fat in these organisms, which gives the substance the specific reaction, as shown first by me, hindered the extraction of tubercle bacilli. That this is not true is shown by experiments by the director of my laboratory in Strassburg, Dr. Ernest Klebs, who gives the following account:

ANALYTICAL DETERMINATION OF THE EXTRACT OF TUBERCLE CULTURES.

"Of five liters tubercle cultures exactly four weeks old and grown perfectly, I made the determination of organic substances in the fluid. The cultures after they were taken out of the incubator were first killed by ortho-kresol, then mixed and preserved in a room of normal temperature (January and February). The results of the analysis were as follows. (The glycerin was extracted in the platinum-crucible with ether and alcohol, 3 to 1, before drying the residue.)

1.	Extract	24 hours	after	killing	the	T. B.,	1.64	per cent.
2.	"	7 days	"	"	"	"	1.71	"
3.	"	14 "	"	"	"	"	1.86	"
4.	"	21 "	"	"	"	"	1.88	"
5.	"	35 "	"	"	"	"	2.20	"
6.	"	42 "	"	"	"	"	2.44	"

The difference between analysis No. 6 and No. 1 is: 2.44—1.64=0.8 per cent. In six weeks in the liter of the cultures nearly eight grams more are gone in solution. That result is very remarkable, but I found nearly the same quantity, 7.9 per cent., last summer, as I wrote you."

In this last experiment the strongest toxin I ever received was obtained by concentrating *in vacuo*. Tuberculous guinea-pigs of 700 grams weight are

killed by 0.3 gram weight in less than twenty-four hours and 0.5 c.c. kills sound white rats of 150 grams weight in thirty to fifty minutes. It seems to be identical with the TO of R. Koch. After this result I can not think that by any method more soluble substance can be extracted from the tuberculin bacilli by a fluid containing 5 per cent. glycerin. The high toxic effect of this substance is defending the use for healing purposes, which view Koch seems also to accept by going over to the production of TR. All these extracted substances are contained in the tuberculocidin (TC), eliminating the toxins by precipitation with sodium bismuth iodid. The often repeated effect of this substance is that the higher temperature of tuberculous animals and man is suppressed and the tubercle bacilli are killed, the tuberculous tissue reabsorbed without formation of scars where the tissues are not wholly necrotized. That also the gravest infection of guinea-pigs can heal I have shown last year. (JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, l. c.) It seems to me to be of the highest value to compare the immunizing property of the tubercle bacilli extract made without crushing the T.B. and after crushing them as is made in the preparation of TR. In experiments on guinea-pigs, begun immediately after having received the publication of Koch (in April) on T. B. killed with kresol, 0.2 per cent., I have found no difference in the immunizing power of the extracts made by my method and by the method of Koch. The first seemed to be more efficient, but this may depend on a somewhat higher concentration. So I am sure that the precipitation with $NaBiI_3$ does not destroy the immunizing substance contained in the T. B. As to the question, whether living T. B. give more of this substance, it seems to me very questionable, for if this substance would be destroyed by the death of T. B. our preparations must have become totally ineffectual.

The difficulties in preparing TR from living T. B. lie, as I have shown, in the danger of the presence of some living T. B. in the fluid as long as the fluid is opalescent, by the presence of gelatinous matter. Within the last few days I have found a method of eliminating these certainly superfluous or dangerous admixtures, using the usual centrifuge, giving no more than 2,680 rotations per minute. By adding finely powdered carbonate of magnesia the fluid can be cleared up by a rotation of 2,000 per minute. All this gelatinous matter and with it some T. B. escaping the crushing is precipitated and included in the magnesia deposit. The experiments with these fluids will be begun now and will be referred to in due time. Addition of conservative fluids, as 0.2 per cent. orthocresol, will be tried in these experiments. The danger of contamination at the time of the preparation must be avoided, as far as possible, by always using fluids immediately after having centrifuged them with magnesia-carbonate. For human use such preparations must be avoided, but the theoretic question seems to be interesting.

Wire Springs to Hold open Operated Abscesses.—E. Braatz uses a small wire spring shaped something like a fancy W, or a spiral for deep abscesses, to keep the openings from closing after evacution of the pus, thus facilitating free discharge. He has them made in various sizes, and if necessary, combines a rubber drain with them, which he always slits lengthwise, to secure better drainage. This is a return to the old spirals of Chaissaignac.—*Cbl. f. Chir.*, April 24.

GENERAL MEDICINE A SPECIALTY IN ITSELF; ITS RELATION TO THE RECOGNIZED SPECIALTIES, PARTICULARLY TO BACTERIOLOGY.

Read in the Section on Practice of Medicine, at the Forty-eighth Annual Meeting of the American Medical Association, at Philadelphia, Pa., June 1-4, 1897.

BY GEORGE BYRD HARRISON, M.D.

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I wish to urge upon you, as forcibly as I can, that the time has come when we should claim with all our energy that the department of medicine in which we are engaged (the noblest of all the divisions of the science, because the most comprehensive, and calling into play the intellectual faculties as none other can possibly do), is, and of right should be, a *specialty* in itself, claiming not only *recognition* from the "manipulative" (or otherwise limited), recognized specialties, but occupying toward them the position of a parent to children—a fostering care which they can not do without, unless they are content to be relegated to the domain of sciolism and quackery. These are strong expressions, but not too emphatic for the occasion. A brilliant medical man, of admirable attainment in the theory of medicine, of thorough hospital training and very considerable experience in private practice, told me (within a few weeks), that he had made up his mind to quit private practice and enter the Marine-Hospital Service. Having been out of the class-room so long, and with little time to prepare for examination, he had some misgivings as to his ability to compete with men fresh from their text-books. But, he added, I have come to this deliberate conclusion, that the time is not far distant when none but the rich can afford to indulge in the practice of general medicine. He carried out his plan, and out of three places competed for by thirty odd applicants, took the first position and is now installed in that service. This illustration of what is likely to occur very generally, has struck me forcibly. If the present system goes on we will all be impelled to *quasi* specialism—which is as dishonest as modern homeopathy—or else to give up civil practice altogether.

Let us contemplate the picture as it is presented day by day. We call a laryngologist to a case, because under the Hippocratic oath we feel obliged to give the patient the advantage of manipulative skill and constant practice Everything goes well with this individual, and we congratulate ourselves upon our consideration for the patient and his friends. Very soon we hear of another case in the same household, construed by the friends to be a suitable one for a specialist, and the specialist whom we have introduced is installed. Perhaps there may have been a shade of difference in the conditions, and with our superior knowledge of the qualifications of the various men engaged in this line, we might have preferred some one else to meet the phenomena which long acquaintance with the patient and his relations makes us more fit to interpret than any one else; but the man whom we introduced into the household takes not only precedence, but absolute *control* of the situation; we have not even an opportunity for remonstrance, much less of interference.

Again, one of our constituents, of advanced years, though in admirable health and gaining weight, goes to an aurist to have the cerumen (if there be an accumulation), removed from his ears. The specialist goes through the routine of ear syringing, and prescribes arsenic. The general practitioner is soon called to relieve the patient of violent herpes zoster induced by arsenic—for the patient is intolerant of all drugs, as his general physician well knows.

In another instance a gentleman of rheumatic diathesis has a lump on his forehead, which his physician is treating with iodin ointment and making light of, because the patient is syphilophobic and the physician has sifted the evidence and eliminated such a possibility. The doctor, unwilling to rob him by a consultation (there being no need for one), sends him to a specialist, with a note detailing treatment and asking if any should be added. He sees no more of his patient for months, and when he reports, is told that the surgeon diagnosed syphilis and prescribed iodid of potassium.

A distinguished gynecologist and obstetrician will attend a male hotel guest seized with cholera morbus, when general physicians are within easy call. The same gentleman will consult in a fatal case of septic dysentery, and perhaps next day perform abdominal section.

An eye case will be placed under the charge of a careless (or at least not well-selected) specialist, by the patient's friends, and loss of sight be the actual and logical result.

An aged person suffering from cophosis will be sent by some kind patron to an aurist, and encouraged by him to pay regular visits for a protracted period, when the general attendant, knowing the history of the case, could have predicted the result (negative except to the aurist), and have saved the patron needless and wasteful expenditure.

These illustrations could be multiplied almost indefinitely, but enough have been given to "point the moral." "My brethren, these things ought not so to be." We have a duty to the general public, a duty to ourselves, and an obligation also to the true and regular specialists, of whom we all know a few. These cases which I have cited are not fancy sketches, but (*mutatis mutandis*) living pictures actually observed day by day. They are not complimentary to our great profession; but they are facts, stubborn and hard to correct, but which we are bound to face and *endeavor* to correct; and moreover, they can be corrected, if we are true to ourselves and to the much-vaunted ethics of our Code. Indeed, it is through the Code of Ethics of the AMERICAN MEDICAL ASSOCIATION that they must be fought. There may be difference of opinion, and profitable discussion, as to the manner of correction, but our duty is paramount, if the prestige of regular medicine is to be preserved. I venture two suggestions:

1. Instead of prohibiting the specialist from so proclaiming himself, on his sign (as is now the rule of his special association), he should be *made* to do so Then we could mark his errors, and deal with them ethically.

2. Our Code might be amended, so that a patient, presenting himself in a physician's office for the first time, should be asked who his regular attendant was, and after receiving treatment, should be referred to his attendant, in order that the treatment given might be approved and supplemented, or condemned; for, as we have said before, by reason of superior knowledge concerning the individual's constitution, antecedents and environment, he is the best qualified judge of the situation. It is manifest that one division of our science should not be bound by the law of Hippocrates, if the rest are to be free lances—*ce va sans dire.*

But let us now consider certain aspects of the relations of general medicine and bacteriology, as it presents itself up to date—a science of inestimable value today, and of incalculable potentialities in the future. It is, however, greatly to be feared lest in some of its careless and unintelligent applications, it do more harm than good. In no direction is its inexact employment more disastrous, according to our observation, than in the diagnosis of diphtheria.

Through its instrumentality, the National Capital, at the very opening of the present Congressional year, was accredited with an "epidemic of diphtheria." From our own experience and practice, which is largely amongst children (though we repudiate any claim to reputation as a specialist in this line), the writer deliberately asserts that, for seventeen years, he believes the community has not been so free from diphtheria. This observation coincides with opinions expressed to him by many of the leading members of the profession here. The writer, besides his private practice, is and has for fifteen years been the senior physician of one of the largest orphan asylums of the city, whose children have *entrée* to the public schools, and whose inmates' friends visit them weekly. Within two years and a half, we have seen *one* case of diphtheria, and no case of fatal sore throat nor fatal laryngitis in our whole practice; and yet this has been heralded to the world as a plague spot. We have seen angina membranacea, follicular tonsillitis, herpetic sore throat, aphthous sore throat, etc., but these have all yielded promptly to antiseptic and aseptic measures with isolation and ventilation, coupled with appropriate general and local treatment, including stimulation and proper diet. We believe the disease has in no case been transferred from one member of the family to another. In all, there has been spontaneous tendency to recovery and actual recovery.

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ON TRACHEAL TUGGING IN CONDITIONS OTHER THAN ANEURYSM OF THE TRANSVERSE PORTION OF THE ARCH OF THE AORTA.

Read in the Section on Practice of Medicine, at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, June 1-4, 1897.

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While serving as medical interne at the Johns Hopkins Hospital under Dr. Osler, some years ago, I became impressed by the frequency with which cases of aneurysm of the transverse portion of the arch of the aorta were accompanied by tracheal tugging. Desiring to know if this phenomenon might occur in other diseases or in health, I recently began to collect statistics, and desire to make today what, on account of the small number thus far examined, can only be called a preliminary report.

I found that results of work on similar lines had been published by Grimsdale[1] and by Ewart,[2] and a

[1] Practitioner, February, 1892.
[2] British Medical Journal, March 19, 1892.

short time ago F. A. Packard,[3] in an article on "The Signs and Symptoms of Aortic Aneurysm," makes mention of some observations of his own in this connection.

In making up my tables the following points were ascertained in addition to tests for tugging: Nationality, age, sex, social condition, occupation, disease for which under treatment, condition of heart, shape of chest, and pulse rate. As nationality, social condition and pulse had no bearing in the cases I examined they will not receive further attention. So few females were examined that I shall omit such cases from the present paper.

In testing for tugging, both Oliver's and Ewart's methods were used during inspiration, expiration and while the breath was held. (I may say here that Ewart's method is the more delicate and less unpleasant to the patient.)

Positive results were classified under four groups: *A*, very slight up-and-down movement; *B*, slight up-and-down movement; *C*, distinct tugging; *D*, very marked tugging. The distinction is drawn between an up-and-down movement, because, as Dr. Packard remarks in the article referred to, the word tug is very aptly used and means more than mere movement. Ross (?) probably selected the word to convey a distinct pulling or tugging sensation.

In all, seventy-five cases were examined. Their ages ranged from 20 to 87 years. Nearly every occupation was represented, but by far the greater number were from the laboring classes. The diseases for which the individuals were being treated were as follows: Adherent pleura and pericardium, 1; aneurysm, abdominal, 1; aneurysm, thoracic, ascending aorta, 4; arterio-sclerosis, general, 3; asthma, 1; bronchitis, acute, 1, chronic, 6; cancer of liver, 1; cardiac valvular disease, 7; dilatation of aorta, 1; dyspepsia, 2; emphysema, 2; gallstones, 1; hemorrhoids, 1; hernia, 2; Hodgkin's disease, 1; hydro-pulmono-thorax, 1; laryngitis, chronic, 1; myocarditis, 1; nephritis, acute, 1, chronic, 9; no disease, 7; opium habit, 1; phthisis, 12; pleurisy, dry, 1, with effusion, 1; pneumonia, 1; rheumatism, muscular, 1, articular, 10; typhoid fever, 2.

In forty-four cases no up-and-down movement of any degree was detected. Nineteen cases belonged to group *A*. The ages ranged from 20 to 72 with an average of 41. With the exception of a clerk the occupations all required hard work. Two of the individuals were supposed to be well, 3 had cardiac valvular disease, 2 chronic nephritis, 1 right-sided pulmonothorax, 2 phthisis, 5 chronic articular rheumatism, 1 pleurisy with effusion, 1 hernia, 1 dyspepsia, 1 aneurysm of the ascending aorta. The heart conditions were as follow: Aortic stenosis and insufficiency with mitral insufficiency and hypertrophy 1 case, aortic insufficiency 1, mitral insufficiency with hypertrophy 2, simple hypertrophy 4, two very marked; normal heart 11. There were 3 particularly large chests, 9 normal in size and shape, 1 with chicken breast, 4 long and narrow, 2 abnormally enlarged by effusion.

Group B contained five cases whose ages were 30, 40, 43, 62 and 65. Two were laborers, one a peddler, one a tailor and one a stevedore. There was one case each of Hodgkin's disease, hernia, chronic bronchitis, cardiac valvular disease and cardiac valvular disease with adherent pleura and pericardium. The heart was normal in 3 cases, while mitral insufficiency with hypertrophy was present in the other two. In 4 cases the chest was large and well developed, in one long and narrow.

Group C.—Two cases belonged to this group; one was a laborer aged 42 with extensive phthisis, the other a saw-filer with phthisis and aneurysm of the ascending aorta. The heart was perfectly normal in the former, hypertrophied in the latter. In one the chest was long and narrow, in the other well formed, not phthisical.

Group D.—In five cases a very marked tug was obtained.

The following condensed table will show the different features:

Case No.	Age.	Occupation.	Disease.	Heart.	Chest.
8	82	Laborer.	Emphysema with old left-sided pleurisy.	Hypertrophied	Barrel-typical.
9	65	Laborer.	General arterio-sclerosis.	Hypertrophied supposed to have dilated aorta.	Normal.
59	50	Laborer.	Chronic articular rheumatism.	Normal.	Large.
62	60	Nurse.	Chronic nephritis.	Aortic-systolic murmur.	Normal.
65	51	Carpenter.	Aortic insufficiency, with dilatation of aorta.	Aortic insufficiency with hypertrophy.	Large.

The question of respiration in relation to tracheal tugging is quite an important one. In seventeen of the twenty-four cases beloging to Groups *A* and *B* the up and down movement was observed during *inspiration only*, while in five of the seven cases of Groups *C* and *D*, the tugging was not increased at all by inspiration, and there was only a very slight change in the other two. In other words, a simple up-and-down movement, if present is usually not altered by respiration. It is such tugging that we feel in cases of aneurysm of the transverse arch and not the simple, changeable up-and-down movement. If, then, we eliminate all the cases presenting this latter condition, we have remaining only seven cases out of seventy-five, a little over 9 per cent., in which tracheal tugging was present.

Studying these seven cases in greater detail, it will be observed that the heart was normal in only two of them; it was hypertrophied in four, with aortic insufficiency in one and possibly aortic stenosis in another. In the case of aneurysm of the ascending aorta, there was probably involvement of the transverse aorta, an interesting condition that Ewart suggested in his paper. We would expect to find tugging in both instances of dilatation of the aorta. It is a question whether we can account for its presence in Case 8 by the pulmonary condition. It is possible that adhesions might explain it. There seems to be no such reasoning to apply to the remaining two cases.

If satisfactory conclusions could be drawn from such a small number of cases we would say:

1. An up-and-down movement of the trachea occurs in many healthy individuals and accompanies other diseases than aneurysm.

2. In such cases the movement is much affected by respiration, in the majority of cases being present during inspiration only.

3. In a very small percentage of cases distinct tugging of the trachea may be present without involvement of the aorta either by aneurysm or simple dilatation.

[3] Medical and Surgical Reporter, March 13, 1897.

ON THE BACTERIOLOGIC EXAMINATION OF THE STOOLS IN TYPHOID FEVER, AND ITS VALUE IN DIAGNOSIS.

Read in the Section on Practice of Medicine, at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1-4, 1897.

BY MARK W. RICHARDSON, M.D.

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Ever since Gaffky, in 1894, succeeded in cultivating upon artificial media, the bacillus discovered in typhoidal tissues by Eberth, many efforts have been made by bacteriologists and clinicians to isolate the organism from the fluids and excretions of the living body, notably the blood, urine and feces. Up to 1891 the investigations of a Pfeiffer, Simmonds, and especially Karlinski, had shown the task to be apparently a very simple one. Unfortunately, however, the value of the results of these observers is open to very serious doubts; for the methods employed in proving the cultures thus obtained, were, according to our present standards, entirely insufficient, and it is more than probable that a great many of the bacilli thus isolated were not typhoid bacilli at all, but others of the same group, most probably varieties of the colon bacillus.

In investigating stools the greatest difficulties have arisen from the other bacteria present. These have been a disturbing element, first, because their colonies often markedly resembled those of typhoid, and secondly, because, in their growth, they often completely liquefied gelatin before the typhoid organisms had a chance to grow. This latter difficulty could be obviated by the use of agar-agar, but even then the colonies lacked a characteristic appearance, and many had to be picked up and verified in the hope that one or more would prove to be typhoid.

To overcome this objection, Chantemesse and Widal, in 1887, added to ordinary gelatin 25 per cent. carbolic acid, and claimed that, by this means, the growth of all organisms except typhoid, was inhibited.

Holz, in 1890, could not confirm these results. He devised a medium which combined the advantages of potato and gelatin. This medium was naturally acid in reaction, and this acidity prevented the growth of a number of bacteria. Moreover this inhibitory power was still further increased by the addition of .03 per cent of carbolic acid. Upon this medium both colon and typhoid bacilli grew, but the colonies were said to be easily distinguished.

In 1895 the subject was again taken up, and this time by Elsner. Elsner considered the potato-gelatin of Holz the best medium devised up to that time. The appearance of the typhoid colonies, however, was not, in his opinion, sufficiently distinctive, especially when the carbolic acid was added. Elsner made a long search for a substitute for carbolic acid, and finally hit upon the iodid of potash in the strength of 1 per cent. The formula for this gelatin was as follows: An extract of potato ($\frac{1}{2}$ kg. to a liter of water), was boiled with 10 per cent. of gelatin. The medium was then given such an acidity that 10 c.c. was neutralized by from 2.5 to 3 c.c. of a deci-normal soda solution. Then, just before using, 1 per cent. of potassium iodid was added. Upon this gelatin, typhoid and colon bacilli were practically the only bacteria which grow. Occasionally proteus and other liquefying forms were seen, but they rarely gave any trouble. After twenty-four hours at the room temperature, only colon colonies were to be seen, and these, viewed under a low power of the microscope, were round, coarsely granular, brownish-gray, and sharply defined. The typhoid colonies rarely appeared before the end of forty-eight hours, and these were small, pale, less sharply defined, and with very fine granulation. Elsner experimented with thirty typhoid and colon cultures, and never failed to differentiate them easily. He also examined the stools in seventeen typhoid cases with fifteen positive results.

Since the appearance of Elsner's publication the method has been practiced by a number of other observers, with very considerable success. It has not been at all uncommon to find the typhoid organisms as early as the seventh day of the disease, and, though the bacilli disappear rapidly from the stools with the beginning of convalescence, they have been found as late as the thirty-sixth and forty-first day after the temperature had reached the normal point. Indeed, the method has been more successful, for Remlinger and Schneider claim to have found typhoid bacilli in the stools of five non-typhoidial patients, a leucemia with fever, a case of acute miliary tuberculosis, a case of acute dysentery, and two chronic malarias. Further, these observers had similar success with samples of water and dust taken indiscriminately from the surrounding country. The results are most remarkable, but I think they must be accepted with great reserve until they are confirmed by other observers.

My own investigations upon this subject were undertaken primarily with the purpose of testing the Elsner method as such; later my object was to compare it with the newly discovered serum-reaction, to see whether there might not be cases, where, with a negative serum test, the bacilli were to be found in the stools; finally, I decided to determine the accuracy of the observations of Remlinger and Schneider as to the ubiquity of the typhoid bacillus. Before enumerating my results I wish to state that the latter part of my experiments were carried out upon a new agar medium devised by Capaldi. This is made up as follows:

Aq. dest	1000.0
Witte's peptone	20.0
Gelatin	10.0
Mannit (or grape sugar)	10.0
NaCl	5.0
Chlorid of potash	5.0

Boil and filter. Add 2 per cent. of agar-agar, and make alkaline with 10 c.c. of normal soda solution. Boil, filter and sterilize. In eighteen hours the typhoid colonies are seen as small, round, colorless and transparent in contrast to the larger, more opaque, brownish, colon colonies. This medium is far easier to make up than the gelatin, and my results with it have been very satisfactory. Its advantages are:

1. No chance for liquefaction. 2. The typhoid colonies are much larger, and thus more easy to pick up. With the gelatin the colonies were often so small that it was impossible to make inoculations from them. 3. Colonies are ready for examination in eighteen hours rather than in forty-eight or seventy-two.

The only difference in procedure is, that with the agar, the plates are first poured and hardened. The suspected material is then spread upon their surface, whereas with the gelatin, the material is thoroughly mixed with the medium while the latter is melted. Although the two methods were used in my investigations, the results, for the sake of simplicity, will be considered together.

In all there were examined 109 stools in forty-nine different individuals. Of these forty-nine cases, thirteen were typical typhoids in the febrile stage, and in these thirteen cases fifty-five stools were investigated. The isolation of the typhoid bacillus was accomplished in ten out of the thirteen cases; in nineteen out of fifty-five stools. In one case the bacilli were found on what was said to be the fifth day of the disease, but the history was somewhat indefinite, and disease was probably further advanced. Two cases were positive on the eleventh day. In the other seven cases the typhoid organisms were first discovered on the twelfth, twentieth, twenty-third, twenty-seventh, twenty-eighth twenty-ninth and thirty-sixth day respectively. Seven out of ten cases were positive on the first examination. In these cases, therefore, it is impossible to say how much sooner the organisms might have been found had the stools been received earlier. In the three other positive febrile cases the bacilli were isolated only after several examinations, on the twentieth, twenty-seventh and twenty-eighth days.

In testing the typhoid cultures obtained from these positive cases the bacilli were examined in: 1. The hanging drop—size, shape and motility. 2. Gelatin slant and stab cultures. 3. Litmus milk. 4. Sugar agar. 5. Peptone solution (for indol). 6. Potato. 7. Bouillon. 8. Two test solutions of Capaldi and Proskauer. 9. Reaction to typhoid serum.

Of the three negative febrile cases, one was unsatisfactory because the stools could be examined but once, and that on the sixth day of the disease; the other two were typical typhoids, and one went through a relapse as well. Although six stools in one case and eight in the other were searched and that, too, by both methods, Elsner and Capaldi, I was never able to isolate the typhoid bacillus. All these thirteen cases gave well marked serum reactions at least two days before the typhoid organisms could be recovered from the stools. We see therefore, that, as far as this series of cases goes, the serum reaction proved itself far superior as a diagnostic aid. There are cases reported, however, such as those of Biggs and Park, Breuer, Achard, Cahill and Thoinot, where the serum reaction did not appear until late in the disease, till convalescence began or perhaps till the occurrence of a relapse. In such cases it would seem as if a bacteriologic examination of the stools would be of great value, for the appearance of bacilli in the dejections of the second week is a quite common occurrence. In fact Kolle has reported two cases in point, where the serum reaction was obtained first on the sixteenth and seventeenth days, but where the bacilli were cultivated from the stools on the tenth and eleventh days.

To continue with my own cases—two stools in two cases of doubtful typhoid were examined with negative result. These two cases never presented any serum reaction, and were practically convalescent when investigated. Twenty-three stools of thirteen convalescent typhoids were examined with but one positive result, and that on the first day after the fever had disappeared. Seventeen stools of seventeen non-typhoidal cases were all negative. Included in this series were cases of grippe, pneumonia, sepsis, meningitis, otitis media, endocarditis, gonorrheal rheumatism and neurasthenia. Furthermore, the intestinal contents of twelve individuals were secured at autopsy and examined, this series of observations being undertaken in order that, in case of a positive result, there might be no doubt as to the diagnosis. The pathologic examination in these cases showed them to be absolutely non-typhoidal in character, and the bacteriologic cultivations never revealed any typhoid bacilli.

From the foregoing, it will be seen that the dejections of twenty-nine non-typhoidal individuals showed no typhoid bacilli. Moreover, when we add forty-seven similar stools examined by Pollac, Chantemesse and Courmont, we have a total of seventy-six with not a single positive result. This experience is, certainly, very different from that of Remlinger and Schneider, who found the specific bacilli in 50 per cent. of the non-typhoidal stools investigated. The only case supporting Remlinger and Schneider which I could find, was one referred to by Chantemesse as occurring in a person whose occupation was that of caring for typhoid patients.

Conclusions: 1. The isolation of typhoid bacilli from the dejections of persons sick with typhoid fever is, in the great majority of cases, a practicable procedure.

2. With the appearance of convalescence, the organisms disappear rapidly from the stools. They persist, however, for several weeks; this is important as regards disinfection.

3. The value of the serum test is, in most instances, greater by reason of its simplicity and its earlier appearance. In those cases, however, where the specific blood changes necessary for the serum reaction do not appear till late in the disease, till convalescence begins, or till the occurrence of a relapse, the bacteriologic examination of the stools would be of great value.

4. The results of Remlinger and Schneider, who declare the typhoid bacillus to be a ubiquitous organism, could not be confirmed by the writer.

CLINICAL REPORT ON SERUM DIAGNOSIS IN TYPHOID FEVER.

Read in the Section on Practice of Medicine, at the Forty-eighth Annual Meeting of the American Medical Association held at Philadelphia, June 1-4, 1897.

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The work upon serum diagnosis in typhoid fever, which I shall report, was begun with Dr. Camac in October 1896, at a time when most of the cases in the Hospital were either far advanced in the disease or convalescent, so that my first experience was with cases in which the diagnosis had been previously definitely determined. In some of these cases the blood was given to me for examination without any knowledge on my part of the clinical diagnosis, while in the majority of the cases I was thoroughly familiar with the clinical course of the disease before the tests were made. I have since had occasion to test many cases in which the diagnosis was uncertain. I thought it best to omit in this report the examinations of specmens sent me from cases outside of the hospital, as I can not in every case be sure of the clinical diagnosis. Thus, there are included in this report, only the cases which were in Prof. Osler's wards in the Johns Hopkins Hospital, and of which we have careful clinical records from the date of admission well into the period of convalescence. It is believed that in this way the sources of error were reduced to a minimum.

In making the test with the fresh blood serum, the method suggested by Grunbaum, [1] with slight modifications, was fol-

lowed. The blood was removed from a vein of the forearm with a hypodermic syringe and placed in a Nuttall bulb, on ice, until the serum had separated from the clot. A portion was then sucked up to the first mark on a graduated tube which has another mark corresponding to sixteen times the volume indicated by the first mark. Bouillon was then sucked up with the serum until the second mark was reached. The fluid was then blown out into a watch glass, thoroughly mixed, and again sucked up, the process being repeated several times to insure thorough mixing of the bouillon and serum. The emulsion of typhoid bacilli is prepared by taking a platinum loopful of a culture grown on slightly alkaline agar, then carefully rubbing it up with a drop of the bouillon against the side of a test tube containing one c.c. of bouillon, and subsequently mixing it with the whole amount. A drop of the serum bouillon mixture and a drop of the emulsion of the typhoid bacilli are then thoroughly mixed on a cover-slip and examined at once as a hanging drop.

Of the twenty-two specimens of typhoid blood serum examined by this method, eighteen gave a reaction which was unmistakable. Of the three cases which gave only a slight reaction all except one subsequently gave a reaction by the dry method, which was quite sufficiently marked for diagnostic purposes. In the remaining exceptional case there was total absence of agglutination, when tested by the dry method, nine days before the second examination. As the latter was positive in its result, it may be suggested that, although the reaction was hardly more distinct than is seen at times in non-typhoid blood, its absence at one period and presence at a later one may well have awakened the suspicion of typhoid fever. The tests were made upon the third and upon the eleventh days of the relapse, which occurred twenty-three days after the end of the first attack. During this interval the agglutinating properties may well have disappeared entirely from the blood.

In many of these cases the macroscopic test was used, the blood serum being diluted sixteen times before inoculation with the typhoid culture. Although it was found satisfactory in every case, from the fact that it requires more time, and greater care to prevent contamination, the microscopic test, which is equally striking, is to be preferred.

In order to test the point whether the bacteria were killed or not, cultures were taken both from the macroscopic and microscopic preparations and a growth of the typhoid bacillus invariably followed. The number of organisms inoculated was, of course, large.

In making the test with the dried blood our method does not differ essentially from that employed in other laboratories. The blood is obtained by pricking the the ear, which has previously been thoroughly cleansed, and a large drop is allowed to run down a glass slide which leaves a streak composed for the most part of serum alone while the solid constituents form a clot at the bottom of the slide. The thin film of serum is then moistened with distilled water and a drop placed upon a cover-slip. This gives, invariably, a dilution of more than ten parts of water to one part of serum. It is very essential in case water be used that it be distilled, for we have found in testing non-distilled waters that most variable results are obtained with the same specimens of blood. In most of the tests, the typhoid emulsion was prepared from a slightly alkaline agar culture from twelve to twenty-four hours old, as in the serum test. An oese of this is then thoroughly mixed with a drop of the diluted serum, on the cover-slip, and examined at once as a hanging drop. A given quantity of serum seems capable of affecting only a certain number of the bacteria, so that a reaction which is very unsatisfactory when a large number of organisms are used, may become quite marked when the number is reduced. Conversely, the clumping is unsatisfactory if too small a number of organisms be used.

By the dried blood method, specimens from thirty-nine cases of typhoid fever were tested, and, in these, eighty-five examinations were made. In thirty-six cases the reaction at some period of the disease was quite sufficient for diagnosis, while in three the reaction remained doubtful. One of these cases was considered under the discussion of the serum method. The two other cases were quite atypical and there is a possibility of their not having been typhoid fever; one of them was tested on the fourteenth day of the disease, and the other one on the twenty-second and twenty-fourth days. Of the eighty-five examinations made by this method, seventy-two were sufficiently marked for diagnosis, while thirteen were not. The latter are, however, readily accounted for by the fact that the tests were made either near the beginning or at end of the attack, in every instance excepting the two above mentioned as being atypical. The thirteen examinations were made in seven cases, from one to four examinations being made in each case. In only three of the specimens was the reaction entirely absent either at a very early or very late date. In the remaining specimens a slight reaction was observed, which was not, however, considered sufficient to establish the diagnosis.

In the cases in which both the serum and dry methods were tested at the same time the difference was found to be very slight. By both methods, considered together, a hundred and seven tests were made in forty-six cases of typhoid fever. The percentage of failures in these cases was 6.5, while the failures in the specimens amounted to 15.88, the latter percentage being partly accounted for by the early or late date at which the specimens were taken. The earliest date at which we have obtained the reaction is the sixth day of the disease.

If we make allowances for the slight variations in the reactions due to the differences of dilution and time, we may say that the reaction is found to increase gradually as the disease advances, and to decline with the defervescence or during convalescence.

In nearly all of these cases the preparations were watched for thirty minutes and then examined at short intervals for a few hours, and again on the following few days. I omitted to note separately the motility in each case, but it was always taken into consideration in estimating the reaction as "marked" or "partial." Where the term "slight" is used (see table) the reaction as compared with specimens of non-typhoid blood that gave a similar reaction, should be considered insufficient for diagnostic purposes; however, it was always greater than that found in the majority of specimens of normal blood. In nearly every case control preparations were used, the importance of which precaution can not be emphasized too strongly. These consisted of a hanging drop from the cultures employed, without the addition of serum, and with the addition of normal serum. This is especially demanded in every case in which the least doubt exists.

In all of the cases tabulated the reaction of the culture medium used was slightly alkaline. In a number of cases comparative tests were made, using strongly acid, neutral and alkaline bouillon. The acid culture did not show a precipitate of dead bacteria, or preëxisting clumps as often as the alkaline culture,

Case	No.	Temp.	Severity.	Day of Disease.	Motility.	Clumping.	Time.	Method.	Remarks.
1	. .	100	Severe	52	Lost	Marked	35 minutes	Dry	
2	1	104	Severe	10	Lost	Complete	5 minutes	Serum 1-16	
. .	2	102	Severe	15	Lost	Marked	5 minutes	Dry	
3	1	Normal	Convalescent	59	Lost	Marked	10 minutes	Serum 1-16	
. .	2	Normal	Convalescent	61	. . . . .	Marked	10 minutes	Dry	
4	. .	102.5	Severe	15	. . . . .	Marked	30 minutes	Serum 1-16	
5	. .	. . . .	Was severe		. . . . .	Partial	20 minutes	Serum 1-16	Blood taken at autopsy after 39th day.
6	1	101.5	Mild	22	Increased	Slight	1.75 hours	Dry	A very atypical case. May not have been typhoid fever.
. .	2	100	Mild	24	. . . . .	Slight	45 minutes	Dry	
7	1	. . . .	Mild	11	Diminished	Partial	30 minutes	Dry	
. .	2	102.5	Mild	14	Lost	Complete	Immediate	Dry	Well diluted.
8	1	102.5	Mild	16	. . . . .	Partial	65 minutes	Serum 1-16	
. .	2	102.7	Mild	17	. . . . .	Doubtful	. . . . .	Dry	
. .	3	. . . .	Mild	23	. . . . .	Partial	4 minutes	Dry	
. .	4	. . . .	Mild	21	. . . . .	Partial	5 minutes	Dry	
. .	5	. . . .	Moderate	28	Decreased	Partial	30 minutes	Dry	
. .	6	. . . .	. . . . .	32	Not affected	Slight	30 minutes	Dry	
. .	7	. . . .	. . . . .	71	Not affected	Slight	25 minutes	Dry	
. .	8	. . . .	. . . . .	109	. . . . .	Negative	30 minutes	Dry	No longer typhoid fever.
. .	9	. . . .	. . . . .	192	Not affected	Negative	30 minutes	Dry	
9	1	103.5	Severe	7	Lost	Marked	20 minutes	Dry	Pneumonia with typhoid fever.
. .	2	102.5	Severe	10	. . . . .	Marked	Immediate	Dry	
. .	3	100.5	Severe	12	. . . . .	Marked	30 minutes	Dry	
10	. .	100.5	Moderate	20	Lost	Marked	8 minutes	Dry	
11	. .	101.5	Mild	6	Lost	Marked	10 minutes	Dry	
12	1	100	Moderate	12	Diminished	Partial	35 minutes	Dry	
. .	2	99.5	Mild	13	. . . . .	Partial	30 minutes	Dry	
. .	3	Normal	Convalescent	17	Lost	Marked	10 minutes	Dry	
. .	4	Normal	Convalescent	21	. . . . .	Partial	12 minutes	Dry	
13	. .	100	. . . . .	14	Not affected	None	30 minutes	Dry	May not have been typhoid fever.
14	1	97.2	Convalescent	69	. . . . .	Marked	. . . . .	Serum 1-16	Formerly very severe. Perforation, operation, relapse, recovery.
. .	2	Normal	. . . . .	106	Lost	Marked	15 minutes	Serum 1-16	
. .	3	Normal	. . . . .	108	Lost	Marked	2 minutes	Dry	
. .	4	Normal	. . . . .	110	Lost	Marked	10 minutes	Dry	41 days after temperature became normal still marked.
15	1	103	Severe	14	Lost	Marked	. . . . .	Dry	
. .	2	101	Severe	20	Lost	Marked	2 minutes	Dry	
. .	3	101.5	Severe	23	. . . . .	Marked	5-10 minutes	Dry	
16	. .	103	Severe	16	Diminished	Marked	12 minutes	Dry	
17	1	101.8	Active	8	. . . . .	Slight	30 minutes	Serum 1-16	
. .	2	103	Active	31	Decreased	Partial	1 hour	Serum 1-16	
. .	3	102	Active	33	. . . . .	Partial	20 minutes	Dry	
18	1	Normal	Convalescent	67	Diminished	Partial	30 minutes	Serum 1-16	Blood taken at same time and tested by both methods.
. .	2	Normal	Convalescent	67	Lost	Partial	15 minutes	Dry	
19	1	101.5	Mild	6	Diminished	Slight	20 minutes	Dry	Admitted for cystitis.
. .	2	101.5	Mild	8	Diminished	Partial	30 minutes	Dry	
20	1	99	Convalescent	54	Diminished	Partial	30 minutes	Serum 1-16	Blood taken at same time and tested by both methods.
. .	2	99	Convalescent	54	Lost	Partial	30 minutes	Dry	
21	1	Normal	Convalescent	38	. . . . .	Partial	30 minutes	Serum 1-16	
. .	2	Normal	Convalescent	40	. . . . .	Slight	20 minutes	Dry	
22	1	101.5	Active	7	Lost	Marked	30 minutes	Dry	
. .	2	102.5	. . . . .	3 months	Not affected	None	20 minutes	Dry	Readmitted for parotid abscess and post typhoid cholecystitis.
23	1	103	Moderate	6	Decreased	Partial	18 minutes	Dry	
. .	2	Normal	Convalescent	23	Diminished	Partial	Immediate	Dry	
. .	3	Normal	Convalescent	35	Decreased	Partial	12 minutes	Dry	
24	1	103.5	Moderate	6	Lost	Marked	20 minutes	Dry	Brother of Case 23; 3 other members of the family affected.
. .	2	Normal	Convalescent	23	Diminished	Partial	Immediate	Dry	
. .	3	Normal	Convalescent	35	Decreased	Marked	Immediate	Dry	
25	1	104	Severe	11	Lost	Marked	Immediate	Dry	
. .	2	101	Severe	21	Lost	Marked	Immediate	Dry	
. .	3	100.5	Moderate	23	Impaired	Marked	15 minutes	Dry	
. .	4	101	Moderate	24	Diminished	Marked	5-10 minutes	Dry	
26	. .	103.5	Severe	22	Lost	Complete	10 minutes	Dry	
27	. .	Normal	Convalescent	30	Diminished	Marked	5 minutes	Dry	
28	1	104	Moderate	6	Diminished	Marked	30 minutes	Dry	
. .	2	103	Moderate	9	Lost	Marked	10 minutes	Dry	
29	. .	101.6	. . . . .	54	Diminished	Marked	30 minutes	Serum 1-16	
30	. .	104	Severe	9	. . . . .	Marked	30 minutes	Dry	Brother of 31 and 32.
31	1	105.4	Severe	11	. . . . .	Marked	5 minutes	Dry	Sister of 30 and 32.
. .	2	100.5	Mild	31	Diminished	Marked	5 minutes	Dry	
					Lost	Marked	10 minutes		
. .	3	Normal	Convalescent	63	Lost	Complete	30 minutes	Dry	
32	1	103.5	Severe	9	. . . . .	Marked	30 minutes	Dry	Sister of 30 and 31.
. .	2	100	Mild	29	Diminished	Partial	17 minutes	Dry	
. .	3	Normal	Convalescent	62	Diminished	Partial	Immediate	Dry	
33	. .	97.4	Convalescent	27	Lost	Partial	20 minutes	Serum 1-16	
34	. .	Normal	Convalescent	90	Lost	Partial	15 minutes	Serum 1-16	Was severe, abscesses, relapse.
35	. .	103	Mild	. . . . .	Diminished	Marked	10 minutes	Dry	
36	1	100	Mild	24	Diminished	Slight	30 minutes	Serum 1-16	
. .	2	99	Mild	48	Diminished	Marked	29 minutes	Dry	
37	. .	98.8	Was severe	55	Lost	Marked	10 minutes	Serum 1-16	
38	1	Normal	Convalescent	46	Lost	Partial	30 minutes	Serum 1-16	Was severe, Blood taken at same time and tested by both methods.
. .	2	Normal	Convalescent	46	Lost	Partial	10 minutes	Dry	Was severe.
39	1	101.5	Mild	9	Lost	Marked	18 minutes	Dry	
. .	2	Normal	Convalescent	12	Lost	Marked	15 minutes	Dry	
40	1	102	Moderate	50	. . . . .	None	1.75 hours	Dry	Second day of relapse.
. .	2	101	Mild	59	Diminished	Slight	25 minutes	Serum 1-16	Eleventh day of relapse. Blood taken at same time and tested by both methods.
. .	3	101	Mild	59	. . . . .	Slight	10 minutes	Dry	Eleventh day of relapse.
41	1	99.5	Mild	17	. . . . .	Partial	25 minutes	Serum 1 16	
. .	2	99	Mild	19	. . . . .	Marked	5 minutes	Dry	
42	1	99	Mild	41	Lost	Marked	30 minutes	Serum 1.16	Blood taken at same time and tested by both methods.
	1	99	Mild	41	Diminished	Marked	9 minutes	Dry	
43	2	Normal	Mild	33	Lost	Marked	15 minutes	Serum 1-16	
	2	Normal	Convalescent	35	. . . . .	Marked	5 minutes	Dry	
44	1	103.5	Severe	9	Good	None	30 minutes	Dry	
. .	2	103.5	Severe	16	Diminished	Partial	30 minutes	Dry	Pneumonia and typhoid fever.
. .	3	102.5	Severe	17	Diminished	Partial	30 minutes	Dry	
. .	4	102	Severe	20	Good	Partial	30 minutes	Dry	
. .	5	100.5	Severe	28	Diminished	Marked	20 minutes	Dry	
. .	6	99.5	Mild	31	Good	Slight	30 minutes	Dry	
45	1	103.5	Mild	6	Diminished	Marked	5 minutes	Dry	
. .	2	102.2	Severe	9	Diminished	Partial	20 minutes	Dry	
. .	3	101.5	Severe	12	Lost	Marked	10 minutes	Dry	
. .	4	102.2	Severe	17	Diminished	Partial	8 minutes	Dry	
. .	5	100.5	Moderate	20	Lost	Marked	10 minutes	Dry	
. .	6	100.5	Mild	21	Lost	Partial	20 minutes	Dry	
. .	7	99.5	Mild	24	Lost	Complete	10 minutes	Dry	
46	1	100.3	Mild	16	Lost	Marked	17 minutes	Dry	
. .	2	99	Mild	23	Diminished	Partial	30 minutes	Dry	
. .	3	Normal	Convalescent	35	Good	Slight	12 minutes	Dry	

and the bacteria seemed more motile and the clumping more rapid in the former.

We have found the test valuable in many cases which were not typhoid fever but in which the early symptoms left us in doubt. When in these cases the reaction is slight, it remains for the comparison of subsequent specimens to render a decision definite, while the specimens which give no evidence of the phenomena, after a careful examination as late as the tenth day of the disease, may, in our experience, with reasonable certainty, be considered as not being typhoid fever.

Especial interest attaches to tuberculosis, which sometimes leaves the physician in doubt as to the true diagnosis. In this disease we have found the reaction of value, in excluding at an earlier date than it might otherwise have been possible, cases of tuberculous meningitis, tuberculous peritonitis, and even pulmonary phthisis in which the physical examination revealed nothing in the lungs. Another group of cases, in which it is often of value, is malarial fever, and short febrile diseases which often simulate more or less closely the early stages of typhoid fever.

Among the results which I have found confusing are the presence of the reaction in one case of pernicious comatose malaria, one case of diabetic coma (both tested by the serum method with a dilution of sixteen parts of bouillon), and one case which was probably scarlet fever, in which the patient was also comatose (tested by the dry method). It is a rather singular fact that these three very diverse diseases gave the reaction when in a comatose condition, while repeated examinations failed to reveal it in a large number of other cases of malaria, and in several other cases of diabetes, and of scarlet fever.

In the course of my studies, I have employed cultures of the typhoid bacillus obtained from three several sources, and have noted differences in the reaction obtained with active blood in the different cultures used in parallel tests. One of them even occasionally failed to react at all with specimens of blood that gave a marked reaction with another culture. The same result was obtained by Achard and Bensaude, and Widal and Sicard,[2] although they did not believe that the difference was constant. The time which should be allowed for the reaction will depend upon the degree of dilution. In a dilution of one part of serum to sixteen parts of bouillon thirty minutes seems quite sufficient, while, as Professor Welch remarked, if the dilution of one to fifty be adopted, two hours should be allowed.

The following cases are interesting as illustrations of the value of the test in the diseases mentioned above.

Case 1.—D. B. was admitted with delirium, and no history was obtained. The blood did not give the agglutination reaction, and there was a leucocytosis of 23,000. On the next day the following history was obtained from the doctor who had previously attended her. She had complained for twelve days of severe headache, slight stiffness of the neck and nervousness. The temperature ranged between 100 and 102.5. The patient had epistaxis twice, pain in the abdomen, and twenty to thirty spots on the abdomen which were identical in appearance to rose spots; she had been delirious since the day before admission. The physical examination revealed very little. The subsequent development of inequality of the pupils, tâches cérébrales, the rigidity of the arms and neck, the presence of phosphates and sugar in the urine led to a diagnosis of tuberculous meningitis, which was confirmed by the postmortem examination.

Case 2.—W. W. was admitted for pleurisy with effusion. Eight days after admission the temperature rose, the highest point reached, being 104. The fever gradually rose and slowly declined, reaching normal on the eleventh day. The clinical symptoms as well as the Widal reaction were very suggestive of typhoid fever. The boy had epistaxis, a palpable spleen, malaise, anorexia, a coated tongue; the pulse was dicrotic, and his urine gave the diazo reaction. This case serves as a type of several similar cases in which the existing complications might be sufficient to account for most of the symptoms present, but the distinct reaction of the blood was serviceable in establishing the diagnosis.

Case 3.—G. K., a boy with cystitis was admitted complaining of headache, weakness, abdominal pain, epistaxis, slight diarrhea, anorexia, vomiting, fever, and continuous chilly sensations. The diagnosis of typhoid fever was established by the agglutination test, and the subsequent course of the disease verified this diagnosis. It was a mild attack and the temperature reached normal on the tenth day.

Case 4.—J. L. had typhoid fever in November, 1895, and returned in November, 1896, with headache, weakness, anorexia, and had had two chills before admission. His urine gave the diazo reaction. The agglutination test was marked and of distinct value in confirming the clinical diagnosis. The question here arose as to whether the reaction could have been due to his attack of the year before, and was answered by the return of the patient three months later complaining of having had a chill and fever, headache, and pain in the back and limbs. The urine gave the tests for bile, but not the diazo reaction. The continued high temperature for a few days gave rise to suspicions of a third attack of typhoid fever, as well as cholecystitis, but the former was excluded by the entire absence of the agglutinative reaction.

Case 5.—S. J. was admitted to the hospital for a streptococcus infection of the arm. Six weeks after admission the patient had a slight chill and the temperature rose to 103. There was slight headache, the tongue was coated, anorexia, diarrhea lasting three weeks, and the spleen was enlarged. The temperature for over three weeks ranged between 102 and 104. The examination of the blood gave very marked clumping and total loss of motility. This case is interesting from the fact that the general condition of the patient was not at all suggestive of typhoid fever, and despite the symptoms enumerated above, the diagnosis of typhoid fever could not have been satisfactorily made without the agglutination test. Cultures from the stool and blood did not show the typhoid bacillus, while Dr. Walker obtained the streptococcus repeatedly from the arm lesions.

Case 6.—E. R. was admitted complaining of headache and pains over entire body. There was nothing of importance in his history, but the loss of appetite, coated tongue, palpable spleen, dicrotic pulse, diazo reaction in the urine, prolonged high temperature for six days before the test was applied, and the absence of malarial parasites in a number of blood examinations led to the diagnosis of typhoid fever. The Widal reaction was tested on the eighth day of illness and was totally absent. The subsequent demonstration of estivo-autumnal malarial parasites in the peripheral blood and spleen proved the test in this case a most important aid in excluding typhoid fever.

REFERENCES.

1 Grünbaum: Lancet, Sept. 19, 1896.
2 Widal and Sicard: La Presse Médicale, Dec. 2, 1896.

THE SERUM DIAGNOSIS OF TYPHOID FEVER.

Read in the Section on Practice of Medicine, at the Forty-eighth Annual Meeting of the American Medical Association, at Philadelphia, Pa., June 1-4, 1897.

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The following is a summary of the methods employed and the results obtained in the use of this test in the Health Department of New York city up to May 1, 1897, including a collective investigation of the results obtained by the principal observers up to the present time, taken from the published reports on the subject.

It is now nearly a year since Widal published his first communication on the serum diagnosis of typhoid fever. Charrin and Roger, Gruber, Pfeiffer and Kolle, and others, had previously observed the phenomena described by Widal, viz.: the immobilization and

agglutination of the respective bacilli in the blood serum of animals artificially immunized against infection from the bacillus pyocyanus, the cholera vibrio and Eberth's bacillus, and Pfeiffer had suggested that a differential diagnosis of typhoid fever might be made by means of the serum of animals immunized against typhoid infection. But to Widal unquestionably belongs the credit of having brought the subject clearly and prominently before the profession, and of having on an extensive scale made the first application of the serum test for the diagnosis of typhoid fever. An additional impetus to the work in this newly discovered field of bacteriologic investigation was given by Wyatt Johnston of Montreal, who introduced the use of this method of diagnosis in municipal laboratories, suggesting that dried blood should be employed instead of fluid serum. Since that time the serum test for the diagnosis of typhoid fever, owing to its scientific interest and practical importance, has attracted the attention of bacteriologists and physicians in all parts of the world; and so rapidly has the interest in the subject increased, that we can today hardly take up any well-known medical journal, foreign or domestic, without finding some reference to Widal's test.

In September, 1896, investigations on this subject were begun in the laboratories of the Health Department of New York city, and in the latter part of October, the Board of Health issued an announcement to the physicians of the city, describing the Widal serum test and requesting that physicians having cases which presented symptoms suggestive of typhoid fever should send specimens of the blood daily, or every other day, until the nature of the disease became clinically established. Directions were given for preparing the specimens of blood, and arrangements were made so that physicians could obtain the glass slides for collecting the blood, with circulars of information and blanks to be filled out with histories of the cases, from the various health department depôts throughout the city. The facilities thus offered to the physicians for determining the value of the serum test for the diagnosis of typhoid fever, were quite largely utilized, and in March, 1897, the Health Department published a report prepared by Dr. Hermann M. Biggs, pathologist and director of the bacteriologic laboratories, and Dr. Wm. H. Park, assistant director of the hospital laboratory, of the methods followed and the results obtained up to January, 1897.

During the last four months comparatively little experimental work on the subject has been carried on in these laboratories; but in the results obtained in the daily routine work of the laboratory, no reason thus far has been found to change the methods which were originally adopted, nor the conclusions which were reached when the first report was published.

Methods employed for making the test.—Various methods have been followed by different observers in making the serum test. In Germany to a large extent the macroscopic or test-tube method has been employed, considerable quantities of serum being mixed with a young culture of the typhoid bacillus or with a sterile broth, which is then inoculated; it being claimed by some that many reactions which are missed under the microscope are distinctly apparent in the macroscopic test. In France, on the contrary, the microscopic or hanging drop method seems as a rule to have been preferred. (Some observers use both methods. When large quantities of serum are required, as for the test-tube method, it is withdrawn by venesection of a vein at the elbow, or by deep puncture of the tip of the finger; smaller quantities of serum, as for the hanging-drop method, are easily procured by pricking the tip of the finger or ear with a needle and allowing the blood to coagulate.) The blood for the test has been used in three ways: fluid serum, and fluid and dried blood. The most commonly used is the fluid serum, separated from the blood by coagulation or by means of the centrifuge, and collected in narrow glass tubes, capillary tubes or graduated pipettes. The dried blood has been employed almost exclusively in this country and in Canada (as suggested by Wyatt Johnston of Montreal), being collected on glass slides or paper. The fluid serum is now preferably used in the health department laboratories, and is derived from blisters produced by means of cantharides plasters.

In a large majority of the tests made in our laboratories, however, the dried blood is still used; but whenever it can be obtained, the serum from coagulated blood or fly blisters is preferred. Ordinarily the reaction is watched under the microscope in the hanging drop, this method having been found to give the most satisfactory results. The macroscopic method has been seldom employed, and then only for the purpose of comparing the results with the routine method.

For the dried blood test the blood is obtained by pricking the tip of the finger or the ear, after first thoroughly cleansing and sterilizing the part, and two or three large drops are collected on a glass slide and allowed to dry. In preparing the specimen for examination the dried blood is brought into solution by mixing it with about five times the quantity of water. Then a drop of this decidedly reddish mixture is placed on a cover-glass, and to it is added a drop of a fifteen to twenty-four hour bouillon culture of the typhoid bacillus. The two drops after being mixed should have, according to Dr. Park, a faint reddish tinge, the color being the guide to the amount of dilution necessary. The cover-glass with the mixture is then inverted over a hollow slide, which is greased around the edges to make it air-tight, and the hanging drop examined under the microscope, preferably by gaslight, with a high power dry lens.

The fluid serum is obtained in two ways: 1. Directly from the blood, by pricking the tip of the finger or the ear with a lancet-shaped needle, the blood as it issues being allowed to fill, by gravity, a capillary tube having a central bulb. The ends of the tube are then sealed by heat or wax, and as the blood clots, a few drops of serum separate. This method of obtaining blood serum has been found to possess the advantage of rapidity, but also to have this disadvantage, namely, that the serum thus separated is apt to contain more or less blood cells, which somewhat obscure the field when the liquid serum is immediately mixed with the culture, and which cause clumps of detritus if the serum is allowed to dry. The same thing occurs with dried blood even to a greater extent. 2. The serum is obtained from a blister as follows: A piece of cantharides plaster the size of a five cent piece is applied to the skin at some spot on the chest or abdomen. A blister forms in from eight to eighteen hours. This should be protected from injury. The serum from the blister is collected in a capillary tube, the ends of which are sealed. Several drops of the serum can be easily obtained from a blister so small that it is prac-

tically painless and harmless. The serum thus obtained is clear, entirely free from blood cells and admirably suited for the test. The results obtained with serum from blisters have been entirely satisfactory; nor does this method of procuring the serum cause any discomfort to the patient. Though Widal was the first to observe that the serum from blisters gave the same reaction as blood serum, no one but ourselves, so far as is known, has used this mode of obtaining serum for the test in routine work.

There are several advantages and disadvantages in the employment of dried blood or serum for the serum test. Dried blood is quickly and easily obtained and does not deteriorate or become contaminated. It is readily transportable, and seems to be of nearly equal strength with the fluid serum in its agglutinating properties. The great objection to its use, however, is that there is no way of determining the amount of dilution except by the color, and this can be only roughly and approximately done. Unless diluted with a sufficient quantity of water, at least five times its bulk, it is too viscid to be used. Serum, on the contrary, can be used in any dilution desired. By making use of a graduated capillary pipette, this can be accurately measured. The only disadvantages in the use of fluid serum are the slight difficulty in collecting and transporting it, and the delay in obtaining it when a blister is employed (eight to eighteen hours). But these trivial objections are more than compensated by the greater accuracy of the results obtained.

The typhoid cultures used for the serum test.—The larger number of the tests made in the laboratories have been made with an eighteen to twenty-four hour broth culture of a typhoid bacillus of considerable virulence obtained some time ago from Pfeiffer. Other less virulent cultures have also been employed, but though the reactions in all of them have been fair, the most characteristic reactions have been observed with the more virulent Pfeiffer culture. This fact of the distinctness of the reaction being in proportion to the virulence of the culture employed in the mixture has been observed by Kolle, Fraenkel, Grünbaum and others. In order to get a marked characteristic reaction, therefore, it is important to use for the test a culture not over twenty-four hours old in which the bacilli are not too numerous, but rather isolated and actively motile, and the degree of whose motility is known. Some observers prefer to use the water of condensation or a diluted emulsion from an agar culture; but in our experiments a bouillon culture has been found to give the best results.

The dilution employed in the test.—It has been observed that the blood serum of some healthy persons and those suffering from other diseases than typhoid fever, at times produces identically the same effect upon the typhoid bacilli as is caused by typhoid serum, viz.: immobilization, agglutination and agglomeration of the bacilli; the only difference being that in typhoid fever, as a rule, the reaction occurs in higher dilutions, that is, after the addition to the cultures of smaller quantities of serum, than in non-typhoid diseases, or when the same dilution is used it occurs more quickly and completely with the typhoid serum. The serum test is therefore quantitative, and not qualitative.

The results obtained in the laboratories show that in cases of other diseases than typhoid fever and in healthy persons, a reaction may occur in more concentrated dilutions than 1 of serum to 10 of culture, and that even in a 1 to 10 dilution, occasionally a *delayed moderate* reaction may take place. But very rarely, except in typhoid fever, has a *complete* reaction been found to occur in a 1 to 10 dilution within *fifteen minutes*. When dried blood is used, the slight tendency of non-typhoid blood in 1 to 10 dilutions to produce agglutination is increased by the presence of the fibrinous clumps derived from the blood cells.

Some observers, however, as Gruber and his followers, Grünbaum and Durham, Kolle, Stern, Fraenkel and others, maintain that a considerable proportion of non-typhoid and normal blood serums give a characteristic "typhoid reaction" in a 1 to 10 dilution in one to two hours. Thus, out of seventy cases examined by Stern, twenty were found to give a marked reaction in a 1 to 10 dilution in one hour; five in a 1 to 20 dilution; two a very slight reaction in a dilution of 1 to 30; but none gave a reaction in a 1 to 50 dilution. It is therefore recommended by these observers that a dilution of not less than 1 to 30 and up to 1 to 50 should be used, in order to avoid all possible source of error in this direction.

But as stated before, we have seen no adequate reason to abandon the method originally adopted by us, and we still adhere to the reaction given by the 1 to 10 dilution, believing that, although rarely a non-typhoid blood will give a definite reaction in this concentration, we are able thus to include a large number of true typhoid reactions which would be excluded if a higher dilution were required.

The method of procedure now employed is as follows: The test is first made with 1 to 10 dilution of serum or blood; if complete clumping and immobilization of the bacilli occur immediately, or within fifteen minutes, it is considered satisfactory and a positive diagnosis is rendered; if not, serum obtained from a fly blister is requested and a careful determination of the rate of reaction and the dilution at which the reaction takes place, is made. If possible such examinations are made repeatedly at short intervals. A reaction occurring later than fifteen minutes or in a less dilution than 1 to 10, is never reported as positive.

The short time allowed for the reaction to take place, combined with this comparatively slight dilution, in our opinion seems to form a desirable middle ground, which includes a larger percentage of correct diagnoses than is obtained by a higher dilution. As the percentage of all positive reactions, not typhoid, excluded by the 1 to 10 dilution in fifteen minutes, is very large, and as the number of typhoid bloods or serums, which do not give a positive reaction at a much greater dilution than 1 to 10 is considerable, it has been deemed inadvisable to exclude them by adopting a higher dilution for the standard in our routine work, the number of false diagnoses thus made being very small compared with the number of true typhoid diagnoses.

We depend much upon the rapidity with which the reaction takes place, and upon the character of the reaction. The "personal equation" enters largely here into the conclusion reached in the examination, and also the peculiarities of the culture of typhoid bacillus to which the observer has become accustomed. (Such is the opinion expressed by Dr. P. H. Hiss, Assistant Bacteriologist Health Department Laboratories, New York City.)

Results of the serum test in the diagnosis of typhoid fever.—Up to May 1, specimens of blood or serum, or of both blood and serum, from between

three and four hundred individuals have been subjected to the Widal test in the health department laboratories. Of these the diagnosis of typhoid fever was confirmed or excluded by the clinical course of the disease and by autopsy, in 271 cases. Of 162 of those finally believed to be typhoid fever, 118 gave a marked positive reaction and 44 gave no reaction, in a 1 to 10 dilution. Ninety-eight cases finally believed to be non-typhoid gave no reaction, and eleven cases remaining in doubt, but in which the probability of typhoid was not excluded by the clinical diagnosis, gave a partial or feeble reaction. Thus of the 271 cases of suspected typhoid examined, 129 gave a positive, and 142 a negative reaction—47.6 per cent. positive and 52.4 per cent. negative; 72.8 per cent. of the cases finally believed to be typhoid gave a marked positive reaction with the Widal test, on the first examination.

These cases were examined between the third day and the end of the fourth week of the disease. The greatest number of positive reactions were obtained during the second and third weeks. The cases which gave no reaction, though finally believed to be typhoid fever, were mostly examined early in the disease, during the first and second weeks, and it is not unlikely that in some of these cases a reaction might have appeared later, had repeated examinations been made. For example, in hospital cases in which the blood was frequently tested, a definite typhoid reaction was present in 88 per cent. of the cases at some time during the illness. As a rule the reaction, if occurring at all, appeared before the fourteenth day, but in two cases it did not appear until the middle of the fourth week.

This delayed reaction in cases of typhoid has also been observed by others. Durham reports two cases which gave no reaction up to the seventeenth and eighteenth days of the disease; Stern mentions a case in which there was no reaction until the fourteenth day; Fränkel examined eighteen convalescents from typhoid, with negative results from the third to the fourteenth week of the disease; Kolle cites two cases of typhoid, bacteriologically confirmed in whom the serum reaction was not manifest until the sixteenth and seventeenth days. One case examined in our laboratories, which showed not only the symptoms of typhoid, but from the blood of the spleen typhoid bacilli were obtained, never gave any reaction, though repeatedly examined during the course of the disease.

Widal has recently made some interesting investigations into the agglutinating power of the blood serum of typhoid fever patients during the course of the disease in cases of recurrence and during convalescence, which have an important bearing on this subject. In a communication published in *La Semaine Médicale*, February, 1897, he states that "in five out of twenty-one cases examined the agglutinating power did not exceed 1 to 100. In eight it varied between 1 to 100 and 200; in five others, between 1 to 100 and 400; in the remaining three cases the agglutinating power was very high, being 1 to 800 at the end of a severe attack which had lasted for forty-seven days. It was 1 to 1,800 the fourteenth day of the disease, in another case in which apyrexia set in on the nineteenth day. The last case is the most interesting of all. The agglomerating power reached the extraordinary figures of 1 to 11,000 and 12,000 during the first days of an attack of typhoid fever, yet the disease was only of average severity and the hyperpyrexia subsided within eighteen days from the onset." On the other hand, Widal "met with some grave cases with only slight or medium agglomerating power. In one case, for instance, with a fatal termination, the agglomerating power was never higher than 1 to 50 and varied, toward the end, between 1 to 5 and 1 to 10."

"These figures show," says Widal, "that although a low agglomerating power is usually observed in mild cases, the gravity of typhoid fever is far from always being proportional to the agglomerating power."

"The curve of the agglomerating power during the entire course of the disease varies considerably in character in different cases. Sometimes the agglomerating power is low at the onset of the disease, rising gradually during the stationary period; this is most frequently the case. At other times this power remains the same during the entire course of the disease. Again, it may decrease during the decline, and even during the stationary period of the disease. In one case the agglomerating power was lowered toward the middle of the disease, rising during the period of decline and again decreasing when convalescence set in. In one instance it was higher at the beginning of convalescence than at the end of recrudescence, but it soon fell.

"As a rule, the agglomerating power decreases more or less rapidly during convalescence. In some cases it falls very slowly and when once reduced it may persist for months and even years; at other times the decrease is surprisingly rapid."

Widal thinks that these results show that the agglomerating reaction generally decreases in intensity at the beginning of convalescence and even during the period of the decline of the disease, a fact which in his opinion proves the truth of his previous statement as to its being mainly a reaction of the infection period.

Convalescent cases examined.—Of twelve cases (examined in our laboratories) who had recovered from typhoid fever, three gave a marked reaction in the third and fourth month after convalescence, two a moderate, and three a slight reaction; one gave a doubtful reaction after one year, one a slight reaction after five years, and two gave no reaction after three and fourteen years respectively.

Healthy persons examined.—The blood serum of over one hundred healthy individuals tested, in no instance ever gave a definite reaction in a 1 to 10 dilution.

Other diseases than typhoid fever examined.—In eighty-seven cases examinations have been made of the blood of persons who were suffering from other diseases, such as tuberculosis, rheumatism, appendicitis, malignant tumors, diphtheria, scarlet fever, measles, leprosy, meningitis, leucemia, etc. The serum from only one of these gave a positive reaction and in this case the final diagnosis was doubtful.

Of forty-three cases recently examined for suspected typhoid fever, but which were finally believed to be non-typhoid, one gave a positive reaction with a 1 to 10 dilution, and turned out to be endocarditis complicated by malaria; in another case, which was that of a boy who had been sick only three days with a fever from which he rapidly recovered, the blood gave a reaction on the second day of the fever. The point of interest in this case is the fact that at the time of his illness four members of the family were sick with typical typhoid fever. Another case of this

TABLE—Giving the results of serum diagnosis in cases of clinically typical or suspected typhoid fever, in convalescents, of those who have suffered from other diseases and in healthy subjects, and the test used with dilutions.

Reporter.	Number of cases of typical or suspected typhoid tested.	Day of disease when tested.	Reaction. Positive. Decisive.	Positive. Partial or feeble.	Negative. Decisive or confirmed.	Negative. Typhoid fever no reaction.	Number of convalescents tested. Positive reaction.	Negative reaction.	Period when tested after convalescence.	No. of cases other than typhoid tested. Positive.	Negative.	Number of healthy subjects tested. Positive.	Negative.	Test used and dilution.
Widal	80	4th to 21st	45	..	35	..	6	16	6 months to 9 years	..	200	..	39	Fluid serum 1-10
Achard	9	7th to 12th	3	..	3	3	..	..	..	..	..	..	..	Fluid serum 1-10.
Dieulafoy	2	7th to 12th	2	..	..	..	..	..	..	..	..	..	..	Fluid serum 1-10.
Chantemesse	11	7th to 9th	11	..	..	..	..	..	..	..	10	..	..	Fluid serum 1-10.
Rendu	1	11th	1	..	..	..	..	..	..	..	..	..	..	Fluid serum 1-10.
Haushalter	45	..	45	..	..	..	..	..	..	..	..	..	..	Fluid serum 1-10.
Vedel	2	28th	1	..	1	..	..	..	..	..	..	..	..	Fluid serum 1-10.
Courmont	11	..	9	..	2	..	..	..	..	..	..	..	..	Fluid serum 1-10.
Catrin	76	4th to 41st	76	..	..	..	..	..	..	..	10	..	..	Fluid serum 1-10.
Theolin and Mills	12	..	12	..	..	..	..	..	..	..	..	..	..	Fluid serum 1-10.
Grünbaum	8	10th to 33d	8	..	..	..	6	..	4 to 37 years	15	4	4	3	Fluid serum 1-16.
Durham	4	8th to 21st	2	..	..	2	4	3	10 days to 6 weeks	..	..	..	..	Fluid serum 1-16.
Delépine	30	8th to 23d	24	1	4	1	..	..	..	..	10	..	..	Fluid and dried blood 1-10.
Greene	11	16th to 38th	11	..	..	..	..	..	..	..	14	..	..	Fluid serum 1-10.
Johnston	143	2d to 21st	118	5	14	6	16	1	..	..	35	..	..	Dried blood 1-10.
Block	20	8th to 60th	11	9	..	..	..	..	..	..	..	..	..	Fluid serum 1-16.
Block	17	8th to 60th	9	6	2	..	..	..	..	..	..	..	..	Dried blood.
Breuer	43	6th to 9th	43	..	..	..	7	2	Up to 8 months	5	22	..	..	Fluid serum 1-10 to 1-200.
Stern	16	9th to 14th	16	..	..	..	..	..	..	..	..	..	..	Fluid serum 1-10 to 1-1000.
C. Fraenkel	66	2d to 35th	65	..	1	..	5	20	4 days to 7 weeks	..	..	..	..	Fluid serum 1-10 to 1-50.
Ziemke	6	7th to 28th	6	..	..	..	..	..	..	6	22	..	..	Fluid serum 1-10 to 1-25, 1-50 to 1-100.
Haedke	22	7th to 35th	22	..	..	..	..	..	..	..	20	..	..	Fluid serum 1-10 to 1-25.
Beco	16	..	11	..	..	5	..	..	..	..	..	..	..	Fluid serum 1-10.
Sabrazés and Hugon	22	..	13	3	6	..	..	..	..	..	..	..	..	Fluid serum 1-25.
Jez	4	..	4	..	..	..	..	..	..	1	10	..	..	Fluid serum 1-10.
Uhlenhuth	15	..	14	..	..	1	..	..	..	..	16	..	..	Fluid serum 1-10.
Coleman	11	7th to 35th	11	..	..	..	..	..	..	..	6	..	3	Fluid serum 1-10.
Dempsey	14	..	12	2	..	..	..	..	..	..	..	..	..	Fluid serum 1-10.
McKenzie	61	..	57	..	..	4	..	..	..	..	21	..	..	Dried blood 1-10.
Wright	15	..	15	..	..	..	..	..	..	..	3	..	..	Fluid serum 1-10 to 1-50.
Lefevre	15	..	15	..	..	..	..	..	..	3	156	..	..	Dried blood.
Ellsberg	262	4th to 32d	261	..	..	1	..	..	..	1	147	..	..	Dried blood and fluid ser.
Wynkoop	158	..	99	..	54	5	..	..	..	..	..	..	..	Dried blood.
Thomas	28	6th to 35th	24	..	..	4	..	..	..	5	24	..	..	Dried blood.
Aaser	150	3d to 60th	96	..	54	..	..	..	..	..	..	..	..	Fluid serum 1-25.
Shattuck	125	7th to 21st	124	..	..	1	..	..	..	..	19	..	..	..
Abbott	115	7th to 28d	66	..	47	2	..	..	..	..	..	..	..	..
Kolle	2	16th to 17th	2	..	..	..	..	..	..	..	..	..	..	Fluid serum 1-30.
Du Mesnil de Rochemont	6	4th to 12th	5	..	1	..	..	..	..	..	..	..	..	Fluid serum 1-10 to 1 25.
Oordt	11	7th to 50th	10	1	..	..	..	..	..	..	..	..	..	Fluid serum 1-10 to 1-50.
E. Fraenkel	9	6th to 10th	7	1	1	..	4	2	..	..	..	..	..	Fluid serum 1-25.
Gruber	32	5th to 35th	11	10	..	11	..	..	..	..	..	..	..	Fluid serum 1-10 to 1-30.
Pick	20	..	16	4	..	..	..	..	..	..	..	..	..	Fluid serum 1-10 to 1-25.
Pick	12	..	3	..	9	..	..	..	..	..	..	..	..	Fluid serum 1-50.
Total of 42 reports	1,738	2d to 60th	1,416	42	234	46	48	44	4 days to 37 years	36	780	4	45	..
Health Board to Jan. 1897	200	3d to 30th	100	3	57	40	8	4	3 months to 11 years	1	86	..	100	Dried blood and fluid serum 1-10.
Health Board to May 1897	71	1st to 4th wk.	18	8	41	4	..	..	..	..	..	..	..	Dried blood and fluid serum 1-10.
Total	2,009	2d to 60th	1,584	53	332	90	56	48	4 days to 37 years	37	866	4	145	1-10 to 1-50.

series gave a well-marked reaction in a 1 to 5 dilution, but only a faint one at 1 to 10. It proved to be miliary tuberculosis.

The effect of typhoid serum upon other bacilli.—From experiments made by Dr. Hiss, a number of varieties of motile bacilli other than the typhoid bacillus are developed by the serum from persons suffering from typhoid fever, even when the serum is used quite highly diluted. These bacilli are also clumped, but to a much less extent than with the serum from some persons ill with other diseases.

Collective investigation.—In order to arrive at some general idea of the total results obtained by different observers, in the use of the serum test for the diagnosis of typhoid fever, a collective investigation has been made from the principal published reports on the subject.

In a total of 1,738 cases of typical or suspected typhoid fever reported as having been examined by forty-two different observers, 1,416, or 81.5 per cent. gave a decisive positive reaction, and 42 cases a partial or feeble reaction. In 234 cases finally believed to be non-typhoid there was no reaction, and 46 cases in which the clinical diagnosis of typhoid fever was finally confirmed, or 2.6 per cent., failed to give the typhoid reaction at any time. These cases were examined at different periods from the second to the sixtieth day of the disease. The positive reactions were obtained, as a rule, during the second and third weeks, a few as early as the second and third day from the onset of the disease.

Of 92 convalescent cases reported as having been examined at varying periods after convalescence from the first week to the thirty-seventh year, in 48 a positive reaction occurred and in 44 there was no reaction. In only one case reported by Widal was the reaction present as long after recovery as the seventh year, the majority of the cases showing no reaction after one year. Of other diseases than typhoid fever, 816 cases were reported with only 36, or 4.6 per cent., positive and 780 negative reactions.

Numbers of healthy persons have been examined with the serum test, but the data from the results obtained from these examinations are too incomplete to

give any accurate statistics of the results; but the general statement is made that in very rare instances has the blood of healthy individuals ever been found to give a positive reaction with the typhoid bacillus in dilution of 1 to 10, or over. (The methods employed by the different observers in making the serum tests are almost as numerous as the number of those who have made them—macroscopic and microscopic tests, fluid serum and fluid and dried blood, and dilution varying from 1 to 10 to 1 to 50, and over, being used together or separately. There have naturally been some contradictory results obtained under these circumstances, but on the whole the general consensus of opinion is distinctly in favor of the practical value of the serum test.)

General conclusions.—From an analysis of the results which have so far been obtained in the application of the Widal test, it would seem, in the first place, that the serum reaction is by no means specific, in the strict acceptation of the term. In the second place, it is evident that this test has certain limitations in its practical utility, and that unless properly applied with a due appreciation of these limitations, it is liable to lead to false conclusions. The chief precautions to be observed in making the serum test are: 1. The virulence of the typhoid cultures employed. 2. The dilution of the serum. 3. The time limit for the reaction. The culture should be of high and known degree of virulence and the bacilli actively motile; the dilution should be in the proportion of at least 1 to 10, with a limit of fifteen minutes for the reaction to appear. Others recommend a dilution of 1 to 30 or 50, with a time limit of one to two hours, but according to our judgment, there is no special advantage to be gained by using these higher dilutions. The possibility of error, which in either method is sometimes unavoidable, is in our method at least on the right side. It is better to err occasionally in giving a false positive diagnosis than by a negative result to exclude perhaps many true cases of typhoid. In our collective investigation it was found that sixteen of the forty-two observers had used the higher dilutions, 1 to 20 to 1 to 50, while twenty-six have adhered to the original 1 to 10 dilution of Widal. It should be remembered, however, that, aside from this possible source of error, the reaction may also be due at times not to a present but a past case of typhoid, so mild in character that it has been entirely forgotten. The absence of a reaction in any single case does not necessarily exclude the diagnosis of typhoid fever, as the reaction may be delayed till late in the disease. But if on repeated examinations no reaction appears, it is strong presumptive evidence of the absence of typhoid fever.

Dried blood and fluid serum give very much the same results, but there is a decided advantage in the use of fluid serum, because the proportions in the mixture with the serum can be more accurately determined. The best mode of procuring the serum is by means of cantharides blisters.

When the subject of the serum diagnosis of typhoid fever was first brought before the public, it was hoped that at last the long-sought infallible diagnostic test for typhoid fever had been discovered, which was at once rapid, simple and suitable for clinical use at the bedside. With the non-fulfillment of these hopes, some physicians have come to look upon Widal's test as practically useless for diagnostic purposes. But, nevertheless, the results which have been obtained by many different observers with an extended application of this method of diagnosis, would seem to warrant the conclusion that, in the hands of the expert bacteriologist it is capable of rendering valuable assistance to the physician, along with the other signs of typhoid fever, in a large majority of cases, although, like other signs of disease, it is sometimes wanting, or indecisive.

(In the preparation of this paper the first report on the subject published by the Health Department has been largely drawn upon. It is also desired to thank more especially Drs. Hiss and Baldwin, Assistant Bacteriologists of the Department, for information furnished regarding the recent results obtained in the Health Department laboratories.)

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CLINICAL REPORT ON SERUM DIAGNOSIS IN TYPHOID FEVER.

Read in the Section on Practice of Medicine, at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1–4, 1897.

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I desire to very briefly report the results obtained from a number of examinations made for Widal's reaction in various diseases.

The method I have employed is that devised by

Dr. Wyatt Johnston, the use of the dried drop of blood. It is true that this method does not lend itself to an exact determination of dilution of serum employed; and in a few of the cases fresh blood with exact dilutions was used. A few drops of blood were mixed with ten times the amount of distilled water in the white corpuscle pipette of a Thoma-Zeiss hemocytometer, centrifugated, and the clear liquid thus obtained added to the bouillon culture to the required dilution. For the dry method, however, an agar culture of the bacillus, twenty-four hours old or even less, was employed and the mixture of this with the serum examined directly under the microscope, in a hanging preparation. Even with the dried blood, however, an approximate estimation may be obtained by roughly estimating the original amount of blood and rubbing it up in twice that quantity of distilled water or bouillon with a flat platinum needle. One or two drops of this are added to nine or eight drops of water, in which has been mixed a small quantity of the culture, this giving a dilution of 1:10 or 1:20. The error of this method really increases the dilution and hence does not invalidate any positive results. The hanging drop is examined for at least thirty minutes and oftener for much longer. The 1 in 10 dilution I have regarded as a minimum and generally, for diagnosis, have made use of a higher one.

The reaction is not considered complete until all motility has ceased and until agglutination has reached its maximum. Of 103 cases examined, 45 were submitted with a diagnosis of typhoid fever, 43 gave a complete Widal's reaction in from three to twenty minutes. Two were negative; these were typhoids who were convalescing from mild attacks of the disease at the tenth and forty-third day from the fall of temperature.

Forty-three cases of suspected typhoid fever were sent to me, and the result of Widal's test was confirmed in 38; in 14, with a positive reaction, the course of the disease proved it to be typhoid; in 24 with negative reaction it was not. Of the remaining 5, 2 were positive and 3 were negative; 1 of the positive and 1 of the negative were sisters who had the symptoms of very mild attacks of typhoid fever. The blood of one examined about the second week, gave a complete reaction in fifteen minutes; two weeks later no reaction occurred in either. The clinical diagnosis remained in doubt. Of the remaining cases no history could be obtained and the clinical diagnosis also remained in doubt.

Fifteen cases of diseases other than typhoid fever were examined with uniformly negative results. Quite a number of tests were made with typhoid serum and specimens of the colon bacillus, but in no case was there complete loss of motility or agglutination. There seems to be no very definite relation between the strength of the reaction and the severity of the attack. Only in a general way can one say, that with very mild cases the agglutinative power of the serum may be less and comparatively transient.

I quote briefly a couple of cases which are significant. H. came to the hospital with symptoms of typhoid. He had some diarrhea, abdominal tenderness and tympanites, persistent fever and slight splenic enlargement, but no spots. The temperature remained about 103 and was little affected by baths. There were also some pulmonary symptoms, but repeated examinations of the copious sputum failed to reveal the presence of the tubercle bacillus. An examination failed to give Widal's reaction. The postmortem showed pulmonary and renal tuberculosis. There were no intestinal typhoid lesions and splenic cultures remained sterile.

The other case was one of miningitis. Widal's reaction was present, and the course of the disease showed it to be a case of typhoid with a meningitis due possibly to typhoid infection.

About twenty cases were examined at periods of from one day to nine months after the disappearance of the fever. In four of these, of eight, fourteen, fifteen and forty-three days respectively, the reaction was incomplete or altogether absent. (Two of these had shown a reaction during the febrile period.) The others were all positive. Those which had also been examined during the disease, showed an increase in the time required before the reaction was complete. Cases in which a relapse took place show this more markedly. In one case on the fifteenth day the reaction was complete in three minutes; on the twentieth day, with normal temperature, in five minutes; on the twenty-seventh it took thirty minutes before the motility of the bacilli ceased. A relapse occurred shortly afterward and on the third day of this the time of reaction was three to five minutes. The other cases showed the same thing. It might seem that very little immunization had taken place and that the agglutination of the bacilli kept pace with it; that the reaction should be regarded not as a phenomenon of infection but rather one in some way connected with the production of immunity, a bye-product of immunization. (The experiments of Wright and Semple seem to point to the same thing. The blood of their patients who had received increasing doses of dead virulent typhoid cultures, showed the gradual appearance of the Widal reaction increasing hand in hand with the immunity.)

The earliest period in the disease at which the reaction was found was the fifth day. In four it was absent or incomplete on the sixth, seventh, tenth and eleventh days, but was present on the fifteenth, seventeenth, twenty-third and twenty-fourth days respectively. Its maximum did not always correspond with the height of the infection.

Care must be taken to distinguish between a complete positive reaction and what has been called a pseudo-reaction—a partial reaction. In this latter I have never found a complete cessation of motility of the bacilli, even when the agglutination has been fairly well marked. Another source of error may be noted. If instead of using one stock culture from which to make the fresh inoculations, they are made directly from one tube to another in successive generations, the culture gradually loses its power to react to the typhoid serum. It may be that such reinoculations increase the virulence of the bacilli and that virulent bacilli do not agglutinate as well as the non-virulent ones. This was certainly shown to be the case in the cholera reaction by certain German experiments (Pfeiffer).

The few cases that I have examined have been uniformly positive in their results, if we leave out those few in which there was no clinical diagnosis, or in which it remained doubtful. The reaction seems to be specific in character, inasmuch as it occurs only with the bacillus typhosus and only in cases of typhoid fever. Its value as a means of diagnosis is undoubted. Two things must be remembered, however. The fact that it rarely appears before the fifth day of the disease,

and, as has already been pointed out, that it may be retained for a long time after convalescence, some cases being reported in which it existed for years afterward. Such a case, with febrile symptoms, might be mistaken for a light typhoid attack by the examiner, if the fact of the previous attack were not in the clinical history.

LARYNGEAL PERICHONDRITIS COMPLICATING TYPHOID FEVER.

Read in the Section on Practice of Medicine, at the Forty-eighth Annual Meeting of the American Medical Association, at Philadelphia, Pa., June 1-4, 1897.

BY M. H. FUSSELL, M.D.

PHILADELPHIA, PA.

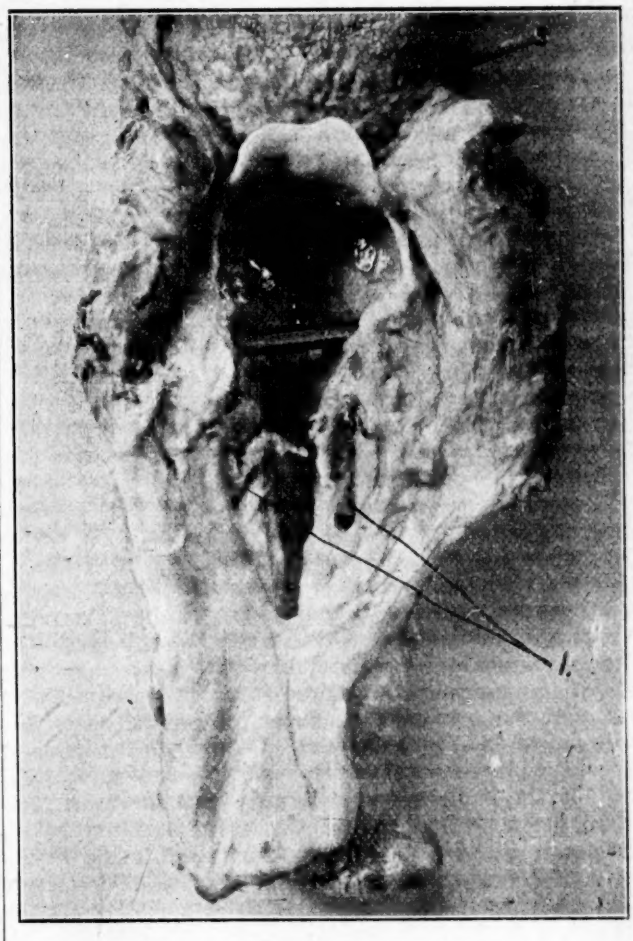
Perichondritis as a complication or sequel of typhoid fever has been known since the beginning of the present century. Nevertheless, the text-books upon medicine, with rare exceptions, make no mention of the fact. Perhaps all of the books speak of laryngitis or of ulceration of the larynx, but very few of perichondritis as the result of this ulceration. Osler has seen but two cases, both of which recovered. Hutchinson quotes Greisenger as an authority for its occasional presence. Strümpell says the disorders which attack the less superficial structures of the larynx are fortunately rare. Chief among them is laryngeal perichondritis. This complication is justly regarded as of bad omen, and may lead to the rapid development of laryngeal edema with great obstruction. Greisenger and Betke were among the very first to study this condition; they made studies of the condition of the larynx in persons who had died of typhoid fever, and Greisenger says that ulceration of the laryngeal mucous membrane occurs in about one-fifth of the fatal cases, while Hoffman found it in 11 per cent. and Betke in 12 per cent. (Inaugural thesis by Plagemann, 1879, on "Laryngo-typhoid.") Plagemann goes on to say that while many cases of ulceration recover without other symptoms than those of laryngitis, the cases which go on to edema and consequent stenosis usually are the result of perichondritis. He believes that the cases are always due to the local effect of the typhoid poison upon the larynx. Most authors believe that there is always an antecedent condition of the larynx upon which is engrafted the severe ulceration and consequent perichondritis. About 1878 to 1881 there seems to have been a desire on the part of the graduates of medicine in France and Germany to write on the laryngeal complications of typhoid fever. Many excellent essays may be found among the theses of that period; to those of Plagemann, Campe, Blasing and Atherac the writer owes most of his statistics.

The frequency of laryngeal perichondritis may be judged from the fact that in 2,000 autopsies of typhoid cases reported in the *Münchener Medicinische Wochenschrift* for 1891, there were fifteen cases.

The case here detailed was seen by me in consultation at St. Timothy's Hospital, Philadelphia.

The patient, an Italian, male, aged 30 years, was seized with what proved to be an unusually severe attack of typhoid fever in December, 1894. In the very beginning of the attack there was much hoarseness, and in the course of the fever he developed pneumonia.

After five weeks the temperature fell to normal. About six days after this a friend brought him an apple, which he ate, core and all. Almost immediately he was seized with a severe attack of coughing and signs of laryngeal stenosis. I saw him on the third day afterward. He was suffering extremely from stenosis of the larynx and begged for relief. Examination of the larynx showed nothing but an edema; no ulcerations in any part. The region of the thyroid cartilage was swollen externally and extremely painful to the touch. The urine was normal. The lungs showed no signs of disease. Examination of the sputum showed an absence of tubercle bacilli. A diagnosis of perichondritis was made, tracheotomy advised but refused, and a blister was placed over the larynx. Two days afterward I saw the patient again. The edema of the larynx had largely disappeared, but the stenosis was quite as great as on the former occasion. The laryngoscope showed a pale mucous membrane with a decided narrowing *below* the cords. The



Perichondritis of larynx, case of typhoid fever.

tenderness over the larynx still existed. The diagnosis seemed to be correct, and a tracheotomy was again urged, but refused. The patient died on the seventh day after the beginning of symptoms of stenosis of the larynx. At the autopsy the left lung was found to be the seat of an old pleurisy; the lungs were crepitant throughout, heart normal, kidneys normal. The intestines showed healed typhoid ulcers, as here shown. The larynx was removed entire. The interior was filled with a frothy muco-purulent matter; there was no ulceration of the cords, but a small mucous polypus, the size of a pea, on the left side just at the junction of the false and true cords. Section through the *posterior* angle of the thyroid cartilage showed a large perichondrial abscess filled with

pus. The cartilage was necrosed. The abscess extended about one-half an inch on each side of the posterior median line. The anterior portion of the thyroid cartilage and the neighboring cartilage appeared normal.

This case would seem to indicate that there is much force in the view of certain authors that the laryngitis from which the perichondritis occurs is one of the primary lesions, for here hoarseness and general respiratory distress were among the early and continuous symptoms. However, careful examination of the larynx showed only the abrasions spoken of, and in no sense an ulcer which was in any way comparable to a typhoid infiltration.

The infrequent occurrence of perichondritis as a complication does not excuse the carelessness of writers on medical subjects in ignoring its occurrence. We are all familiar with the frequent laryngitis which accompanies the fever. Treatment of the laryngitis will often abort a more serious ulceration and perhaps perichondritis. Diagnosis is exceedingly difficult. Many of the authors believe that cold has a decided causative effect; this seems scarcely probable, however, when at the present date cold baths are used so extensively and laryngeal complications are certainly no more common than formerly. When a perichondritis exists and the general condition of the patient will admit, the only proper course is relief by tracheotomy.

THE RATIONAL ANTISEPTIC TREATMENT OF TYPHOID FEVER.

Presented in the Section on Practice of Medicine, at the Forty-eighth Annual Meeting of the American Medical Association, at Philadelphia, Pa., June 1–4, 1897.

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Probably no infectious disease has been the subject of more careful research than that of typhoid fever. There is none upon which the literature is more extensive, and about which there has been greater unanimity of opinion as to its natural history and therapeutic indications. If there is any one fact, in regard to this disease, which has been considered by all who are entitled to be regarded as authorities upon the subject as definitely settled, it is that typhoid fever belongs to the class of self-limited diseases. While various claims have been made, at different times, to the discovery of plans of treatment which are effectual in the abortion of the disease, there is no drug or combination of drugs which has received general recognition as having the power of effecting a specific cure. So, when assertions which revolutionize our conceptions of this ubiquitous and omnipresent evil are persistently and repeatedly made, removing it from the category of self-limited diseases, and placing it in the class which can be cut short by medicines, it behooves us to carefully scrutinize the evidence upon which such claims are made and put them to stringent proof.

I am skeptical as to the abortive powers of any drug in the treatment of typhoid fever; briefly for the following reasons:

1. It is a specific infectious disease and with the exception of malaria there is no other of this class which can be jugulated by the action of drugs.

2. The long period of incubation, and prolonged insidious onset characteristic of the disease give ample time for the infectious microörganism to pass beyond the intestine into other tissues and organs, where they can not be reached via the gastro-intestinal canal.

3. There is no evidence to prove the potency of any medicine for the destruction of the pathogenic agent in the intestinal canal when given in doses which would not be toxic to the infected person.

4. There is no drug known to me, which we can introduce through the circulation, that will destroy the typhoid bacilli after they have reached the glandular organs.

5. My own experience with the formulæ which have been extensively advertised as specifics, has not been such as to substantiate the claims made for them by their authors.

The object of this paper, however, is not to combat the use of any particular combination of antiseptic drugs, for that question can well be removed from the sphere of debate, and may be relegated to the arbitrament of the sick room, where it will soon be settled beyond any doubt; but rather to prevent what I conceive to be a rational basis of antiseptic treatment of the disease under consideration, involving a far more comprehensive modus operandi than the mere action of drug upon the typhoid bacilli. The antiseptic treatment of typhoid fever begins at the mouth and ends at the bed pan.

Experience has abundantly verified the necessity for a liquid and easily digested diet, which is requisite for the following reasons:

1. Impaired masticatory powers, muscular weakness and degenerations are characteristic and early results of the typhoid toxin and affecting the muscles of mastication as well as others, this first process of digestion is inhibited. Oftentimes the effects of the toxins of the disease upon the nervous centers is to interfere with mastication even if the muscular power was not diminished.

2. Impairment of insalivation, from diminished secretion and weakened digestive power of salivary glands. Hence starchy foods, especially those requiring mastication, are likely to undergo fermentation, and as an antiseptic precaution should be either prohibited or used in such forms as to facilitate their digestion.

3. There is impairment of the motion of the tongue and other muscular structures of the mouth, conducing to the retention and decomposition of particles of food, which are likely in various ways to contribute to infection.

4. The same muscular weakness and tendency to stupor which interferes with mastication also impairs deglutition, especially of solids, particles of which are apt to pass into the air passages (swallowed the wrong way) and become the carriers of infection, and the fruitful sources of secondary inflammatory processes as pharyngitis, laryngitis, bronchitis, catarrhal and croupous pneumonia.

5. These various functional disturbances, aggravated by the use of solid food, are likely to cause other inflammatory and suppurative processes as parotitis, disease of the middle ear, etc. Hence, a rational plan of antisepsis should begin with the selection of such foods as are best adapted to the weakened functional capacity of the patient, and which are least likely to be left between the teeth or upon the gums, where they are likely to undergo decompo-

sition and become the media of infection, and any plan of antiseptic treatment which does not include such regulation of the diet—the use of the tooth brush, as well as other cleansing and disinfectant measures applied to the mouth—appears to be fatally defective.

6. *Acute gastro-adenitis.*—It is, I think, generally admitted, that the stomach is involved to a greater or less extent in every case of typhoid fever no matter whether the case be mild or severe. The terms gastric and catarrhal fever, as frequently applied to the disease, indicate the constancy of gastric complications. Dr. Wm. H. Thomson speaking upon this subject says: "It is by no means the glandular tract of the intestine only which suffers, for recent researches show that in no disease except in gastric cancer is the peptonic power of the stomach so decreased as in this fever. Dr. Samuel Fenwick of the London Hospital, (*Lancet*, June 11, 1887) reports four cases of marked atrophy of the stomach in typhoid fever in which he scraped off the whole of the gastric mucous membrane and proved that the average weight was only 580 grains, while the average weight of the same membrane in seventeen patients who had died of other diseases was 1,035 grains, showing that in typhoid fever the stomach loses nearly half its bulk. Nor is there merely loss of bulk; there is also impairment of functional activity, for in seven cases of typhoid fever he made an artificial gastric juice with the mucous membrane of the stomach and found that the average amount of coagulated albumin was only one grain, while the amount ordinarily dissolved by the same in those dying of other diseases, as phthisis and pneumonia, was four grains. In two of the typhoid cases, the gastric membrane had lost its peptonizing power entirely, so that the albumin was quite unaffected by the artificial gastric juice made from them.[1]"

Resulting from this gastro-adenitis we have a deficiency of secretion, especially of hydrochloric acid, and as this is one of nature's most powerful antiseptics, its inadequate elaboration is followed by fermentation and putrefactive processes in the stomach with all their evil consequences. The secretory functions of the stomach are not the only ones involved, for as the muscular structures are generally affected, this coat of the stomach does not escape, so we have motor incapacity added to the other functional disturbances. As Dr. Thomson truly states, "we should bear in mind that in every case of typhoid fever, we have to deal with a stomach which is reduced to the weakness or even more than the weakness for digestion of the stomach of a newly born infant."

Therefore, we should not only abstain from loading a stomach with strong solid foods, but it is vitally essential for the well being of the patient, to carefully adapt the quantity and quality of the food to the digestive capacity of the patient. Not only so, but it is requisite also to aid stomach digestion by the administration of hydrochloric acid, pepsin and the like, as well as to stimulate its motor activity by nux vomica; these remedies are antiseptics in the widest acceptation of the term, and any plan of treatment which ignores these well established conditions and fails to remedy them by a properly regulated dietary, and the administration of such antiseptics as above indicated is fatally defective.

7. *Secondary intestinal disturbances.*—The salivary and gastric glands are not the only ones damaged in secretory capacity, in this disease; for the disturbed circulation, the anemia, the pyrexia and presence of the toxins in the blood, have a similar deleterious effect upon the secretions of the liver, pancreas and intestinal glands.

The disturbance of function and inflammatory conditions thus accounted for, are explanatory of various intestinal symptoms which otherwise might be attributed solely to the direct effects of the specific lesions, and any plan of treatment which leaves out of view these secondary infections and functional disturbances of intestinal digestion, is to my mind fatally defective.

In the consideration of the utility of drugs for the purpose of intestinal antisepsis several factors require investigation. 1. At what period of the disease does the evidence prove that the typhoid bacilli penetrate beneath the mucous membrane into the glandular tissues? Upon this subject it would be reasonable to suppose that absorption of the bacilli goes on during the period of incubation, for the symptoms of the onset can only be thus explained; the mere presence of the pathogenic organisms in the lumen of the intestinal canal would not account for the anorexia, headache, malaise, dizziness, muscular and mental weakness and fever. However, we are not left to conjecture on this point. Murchison[2] quotes Trousseau as stating that enlargement of the agminated and solitary glands is found on the fourth and fifth days, while Chomel and Louis held that it did not commence until the seventh or eighth days, but expresses his own opinion, founded upon postmortem investigation, that glandular enlargement commences with the disease and continues to progress until about the ninth day. Speaking of the mesenteric glands, Murchison states further, that these glands are invariably enlarged, their appearance varying according to the stage of the disease at which death occurs. *They begin to enlarge at the very commencement of the fever*, and go on increasing in size, contemporaneously with the intestinal glands, until about the twelfth or fourteenth day. 2. Conceding that the bacilli multiply after reaching the intestine, penetrate the mucous coat, invade the lymph channels, passing into the mesenteric glands and entering the blood, through which they reach the spleen and other organs, is it rational to suppose that antiseptic medicinal agents acting upon the intestinal canal could cut short the disease by any effect upon the bacilli? 3. Conceding that it is unreasonable to expect any direct curative effects by the action of drugs upon the bacilli, the question arises, can such drugs be beneficial in other ways, and what is the rational *modus operandi?* In addition to the direct action of the typhoid bacillus, we have to take into consideration the coöperative effects of the absorption of septic material into the blood from the intestines, and complications due to other microörganisms which find a more favorable soil for development in the tissues and organs of a patient whose power of resistance has already been reduced by the fever. So then, a rational system of antiseptic treatment of typhoid fever involves, in addition to those measures of prophylaxis already mentioned, which are of greatest importance, the use of other means for the prevention of septic absorption and complicating processes.

Before speaking of the utility of antiseptic drugs,

[1] Trans. New York Academy of Medicine, 1891, p. 28.

[2] Murchison: Continued Fevers, third edition, pp. 617-631.

I wish to emphasize and reiterate the statement that a proper adaptation of the diet to the conditions produced by the disease is of far more importance than the use of any drug or combination of drugs in the pharmacopeia. It is in the intestines that the accumulated evil effects of mouth and stomach indigestion are felt with greatest force, hence abdominal pain, tympanitic distension, diarrhea, absorption of ptomains, to say nothing of the increased danger of hemorrhage and perforation, can not be obviated when the diet is neglected, no matter what medicines are given. Intestinal antisepsis may be promoted by the free use of water by the stomach, mechanically washing out and cleansing that organ and enabling it to empty itself of accumulated products of imperfect digestion. An abundant supply of diluents are also useful in other ways, viz.: by stimulating secretory activity of the skin, kidneys, lungs, intestines; by promoting the discharge of excrementitious products, and in preventing septic complications.

Similar results are obtained by occasional careful cleansing and disinfectant irrigations of the large intestine, which are especially useful when either constipation, diarrhea or tympanites indicate the presence of intestinal irritants. The same indications can be met by sweeping out abnormal intestinal contents from above, by the cautious administration of mercurial and saline purgatives. I use the word *cautious* advisedly, for the increased susceptibility to the action of cathartics in typhoid fever is well understood, and in my opinion the persistent and continuous use of purgatives is not only unnecessary, but bad practice. I have observed hypercatharsis from a seidlitz powder, and have had to discontinue capsules containing small doses of calomel and podophyllin because of the excessive intestinal peristalsis. A small dose of calomel (say half a grain every half hour until six doses are taken, followed in two hours by 2 dr. of sulphate of magnesia if bowels do not move) will have a good effect at the outset and may also be required during the progress of the fever. When the bowels are obstinately constipated, it is better to move them by daily enemata of glycerin than by the repeated use of purgatives by the stomach.

Before prescribing any one of the long list of antiseptic drugs, several questions must be favorably answered: What effect will the medicament have upon the appetite and digestion of the patient? Will it produce nausea, vomiting, or in any way interfere with nutrition? If the reply be affirmative the drug should not be used. Next, granting that absorption of the drug does not occur in the stomach, to what extent can we reasonably expect to destroy pathogenic microörganisms or prevent the formation and absorption of ptomains, in a tube of such great length as the intestinal canal, without giving them in such large doses as to poison the patient?

If called upon to testify as to my personal knowledge concerning the positive value of antiseptic drugs in the treatment of typhoid fever, I fear my testimony would not add much to their reputation, for the reason that it has been my custom to use these remedies in conjunction with hydrotherapy and with other remedial measures, according to the plans as heretofore specified in this paper. I can, however, call to mind a few cases where a distinctly good effect appears to have been produced. A boy 4 years of age, treated last summer, showed a disposition to excessive elevation of temperature in spite of the most active and persistent use of cold baths; under 3 gr. doses of thymol, given every three to four hours, the fever was reduced and he finally recovered. On the contrary, I have in other cases found the fever apparently not affected in the slightest degree by this remedy. In addition to thymol, I have used the various preparations of bismuth, subcarbonate, subnitrate and salicylate; when the diarrhea is severe these are useful. Salol and sodium benzoate have also been beneficial in similar conditions.

Other drugs of this class, which have been used with asserted good results, are phenol-bismuth, ichthyol, beta-naphthol, betol, benzo-naphthol, hydronaphthol, magnesium benzoate, carbolic acid, creosote, turpentine, chlorin, iodin, camphor, chloroform and quinin; this is but a partial list, the very fact that they are so numerous tending to verify the observation that none of them are entitled to be regarded as specifics. They may fulfil useful purposes, but a rational system of antiseptic treatment of typhoid fever should include a careful attention to all these methods of regimen which an abundant experience has demonstrated to be essential.

One word as to the necessity of attention to the hygiene of the sick room as an antiseptic measure. An instance in point is that mentioned by Korcynski and Gluzinski,[3] who mention a ward, previously occupied by many surgical cases, wherein a number of patients affected with enteric fever were afterward placed. Great mortality from septicemia, pyemia, phlegmonous inflammations, etc., ensued, and dust from the ward showed the presence of staphylococcus aureus, and the streptococcus pyogenes citreus and albus. After thorough disinfection of the ward these septic complications disappeared. No plan of antisepsis is complete, which does not include a complete destruction of the typhoid bacilli after their escape in the dejections.

THE TREATMENT OF TYPHOID FEVER.

Read in the Section on Practice of Medicine at the Forty-eighth Annual Meeting of the American Medical Association held at Philadelphia, June 1-4, 1897.

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I have been influenced in the selection of a subject for this paper, not by the fact that its discussion has been neglected, nor because the medical mind for many years has been lacking in appreciation of its importance or failed to elaborately consider the best therapeusis for its management, but because concurrently with the development of much that is beneficial, errors and misconceptions have crept in. I believe, in the minds of many men, there is a vagueness of conception of the skilful treatment of typhoid fever, which in this advanced age with its wealth of clinical observation and literature, is deplorable. Therefore, I will endeavor to discuss the subject as fully, yet as concisely and practically as possible.

Prophylaxis.—Being an infectious disease we can not be too careful in using every means to prevent its spread. The case itself should not be allowed to become a focus of infection, the greatest care should be exercised in disinfection of the dejections, ventilation and cleanliness. Care also should be exercised in disposing of the dejections and urine, that neither

[3] Centralbl. für Klin. Med., 1892, p. 829.

drinking water nor milk be infected. The free use of such chemic disinfectants as experience has taught us will absolutely destroy the bacilli, will prevent the spread of the disease. After adding the disinfectant, prolonged exposure to the sunlight is essential to perfect disinfection. In the country, free additions of quick lime and then burying far from all water supply will be efficacious. The bed linen and clothes of patient should be thoroughly boiled with a strong solution of bichlorid. The bed should be protected by a rubber sheet. When the case has terminated the room should be thoroughly disinfected for at least two weeks before it is occupied and furniture washed with a solution of bichlorid, 1 to 1000. In fatal cases the body should be enveloped in a sheet and moistened in a solution of bichlorid, 1 to 1000. If prevalent in an epidemic form, all milk and water should be boiled and no uncooked food eaten. The source of the infection should be sought for in the water or milk supply or faulty plumbing, and if possible corrected. All faulty sanitary arrangements by which the water supply, milk or other articles of food may be contaminated should be remedied.

General management of the patient.—I desire to emphasize at the outset the importance of *absolute rest.* So important do I believe this to be, that I am sure that I have seen it make the difference between life and death to neglect the precaution of perfect quiet to both body and mind. The patient in the beginning should be placed in as comfortable a room as possible; well ventilated, free from all possibility of continued exposure to infection, and in bed, as soon as the prodromes manifest themselves. Those patients who do not give up until forced to, are the most troublesome, and taking journeys for the purpose of reaching home is fraught with the greatest danger. The rule of using bed pan and urinal should be enforced. The patient should be protected from drafts and the covering varied with changes of temperature; the bed linen and clothes of the patient changed sufficiently often to keep them clean, though prudence must be exercised to avoid too great unrest to the patient. The nursing should be quick, systematic, absolutely free from every disturbing factor. Patients should not be left alone, especially if at all delirious; suicidal impulses may develop and life be lost as the forfeit of too little watchfulness. Sufficient pure, cool water is to be given in amounts not large enough to oppress the patient by the aggregate quantity taken, yet sufficient to relieve thirst. The diet should be liquid, nutritious, easily digested and the most explicit directions as to time and quantity administered. Gastric indigestion, curds in the stools and increased diarrhea indicate over-feeding. Milk is the best of all foods for the typhoid fever patient; it should be given in small portions at stated intervals and in such form as is most agreeable to the patient. The diet may be varied by animal broths, liquid peptonoid preparations, oyster or clam soup. Dull and soporific patients must be aroused to take food at proper intervals, but those sleeping sweetly and naturally should not be disturbed, but the food administered when they awake. Solid food should not be allowed for a week or ten days after return of temperature to normal and then very cautiously. Alcohol should not be recklessly administered in the beginning of an attack; in young, vigorous subjects it is not necessary. In those subjects who have used it habitually a moderate amount should be given from the beginning. In cases in which diarrhea, tenderness, tympanites, great prostration, feeble first sound of the heart, dicrotic pulse and nervous symptoms exist, it should be freely given, whisky or brandy being the best form for its exhibition; if urine be albuminous and contains casts it should be given cautiously.

Mild cases require no treatment beyond rest and quiet treatment in bed, the heart being all right and no evidence of serious intestinal lesion. The bowels should be kept open by simple enemata of salt and water or glycerin and water. However, care should be exercised in even the mildest cases, as relapse may be of serious character, and a case free from danger or complication at the outset develop into one of serious nature. The headache usally requires no treatment, as it spontaneously disappears during the second week, but if it causes much suffering may be palliated by cold compresses or the ice cup to the head, with quiet and exclusion of light. Such preparations as phenacetin, etc., may be used in small doses, but I deprecate most decidedly the use of the coal-tar derivatives at any stage of the disease, as being too depressant. Sleeplessness may be controlled by sodium bromid in the earlier stage of the disease. When coma vigil comes on, no remedy is better than opium; it strengthens heart action and tends to remedy the cerebral congestion. Somnolence is to be treated by alcohol, both internally and by sponging. Ether hypodermatically in 10 minim doses is of advantage. The preparations of ammonia are used, but are inferior in action. Nervous symptoms are to be treated by such agents as musk, asafetida, valerian and ice cap, which must not be left on too long for fear of too great depression. Tremor, supposed to indicate deep intestinal ulceration, is to be treated by full doses of alcohol. Vomiting is not very common, but when it occurs in the beginning of an attack, if obstinate, nourishment by the mouth should be suspended. Iodin, in one-drop doses, is an admirable remedy, or a drop dose of creosote in a teaspoonful of cherry laurel water. Nausea may be controlled and nourishment administered at the same time, by giving a mixture of milk, white of egg and lime water prepared as follows: Add the white of one egg, whipped up to a stiff froth, to a tumbler of milk, mix well and then add a wineglassful of lime water. It may be given in quantities of a tablespoonful to half a tumbler, cold. Locally apply mustard plaster or turpentine stupes to epigastrium.

Constipation, if prolonged is not necessarily an evidence of mild intestinal lesion. I much prefer two or three loose actions per day. It is to be relieved by enemata of warm soapsuds and salt, carefully administered every second day. Laxative drugs are to be avoided, as they may cause perforation of the bowel. Diarrhea should be treated, when excessive, by regulation of quantity and quality of food, and if this does not prove efficient, a small dose of bismuth subnitrate after each stool or a teaspoonful of paregoric may be all that is necessary. If stools are very offensive salol or some simple antiseptic may be given. Dry tongue with sordes on the teeth and tympanites indicate the giving of water freely and the exhibition of turpentine. I can not too highly commend the action of turpentine. The tympanites in the latter stages of the disease, associated with coma vigil, picking at the bed clothes, dicrotic pulse, cold clammy skin, restlessness, all indicating passive congestion of

the brain, vasomotor paresis, are to be controlled by a commanding dose of opium. The tinct. opii is the best form of administration. The marvelous benefit from this remedy under such conditions is most pronounced, and I have more than once seen a patient rescued from a most perilous state. Furthermore, in cases of threatened heart failure, while we rely upon free administration of alcohol, no remedy exceeds strychnia in value as stimulant. Often used in alternating doses with nitroglycerin the patient is tided over a most critical period, the strychnia strengthening heart action, the nitroglycerin diminishing the contracted ischemic vessels and lessening resistance to heart action. In extreme cases, where there is prolonged collapse, the strychnia may be given hypodermically, reinforced by nitrite of amyl by inhalation.

Intestinal hemorrhage, indicated by a sudden fall of temperature and symptoms of collapse is to be treated by hypodermics of strychnia, atropia and ergot, with turpentine stupe to abdomen, enemata of ice water, absolute quiet of the bowels and the patient and diet reduced to a minimum for several days.

Peritonitis demands free use of opium by the mouth or morphia hypodermically; if the patient survive the bowels should be controlled. This lesion is usually due to perforation of the bowels, and coming during the latter stage of the disease or during convalescence the question of celiotomy for its repair has been raised, but I am of opinion that it is not justifiable, except that these cases are usually hopeless under other means, and a small percentage have succeeded.

The patient's attention should regularly be called to the necessity of emptying the bladder, as in the usually lethargic state the inclination is often not recognized. Catheter should be used if necessary. Chest complications and such others as may arise should be treated symptomatically.

Fever.—Numerous drugs have been used with the object of abridging typhoid fever, but all clinical experience shows the effort to have been fruitless. We can, however, in a measure control the temperature. The Brand treatment commends itself by the record of a reduced mortality, but careful examination of the methods strikes me that it is one involving such a state of unrest to the patient that it can not be free from serious objection. Yet with such authority testifying to its beneficial results I would be slow to condemn it. Free sponging with alcohol and water is of great comfort to the patient and I have found it efficient in reducing temperature. I can not too earnestly condemn the use of the coal-tar derivatives; their exhibition is fraught with danger because of their depressant effect on the heart. When the fever has progressed to that point where there is an increase in the length of the remission, during the latter part of the third week, I have seen great benefit in hastening the resolution of the fever by the administration of quinin in doses of gr. x., given at midnight: Care should be exercised, however, that it does not prove too depressant in its influence on the heart.

Serum treatment.—The results thus far obtained are not sufficiently definite, except from the standpoint of diagnosis, to be conclusive, and from the present outlook do not promise much in the future.

I can not close the consideration of this subject without a review of the so-called abortive and antiseptic treatment of typhoid fever. Because I believe many men have been misled by the claims made for this method, and because I believe it to be not only thoroughly irrational, but fruitful of harm, both to the patient by the use of a faulty method, and also to the doctor in engendering a habit of unscientific routinism. Let us look carefully at its method of application and the claims it sets up in its bid for professional favor and endorsement.

The Woodbridge treatment, or abortive treatment of typhoid fever, as described by Dr. John Eliot Woodbridge, makes claims of such brilliant results that one is startled and the question arises, have I been groping and blundering all these years? Let us analyze the claims made for this treatment. In the outset, I desire it understood that I have *never* tried it, not because of a spirit of prejudice or unfairness, but because, upon careful consideration, the brilliant results claimed, to my mind, disproved the facts and I did not feel willing to trifle with the life of my patient by uncertain experimentation. A knowledge of the nature and cause of the disease as fully established by the ablest thinkers of the day, making it a matter of impossibility to believe the results, no doubt honestly claimed as being possible, unless the day of miracles had returned. I would cordially commend the creditable industrious and earnest research of the originator of this treatment, but believe at the same time that he has drawn erroneous conclusions, and that there must have been errors of diagnosis. We have no evidence of proof given, except the bold assertion of success by himself and others, and the testimonials are not worth any more than the testimonials given by hundreds to the so-called cancer cures, kidney cures, *et id omne genus*. We are told absolutely nothing of the mode of cure by this routine practice in the use of formulas one, two and three. The author of this treatment tells us that he has had no death from "typhoid, malarial, or any continued fever for twelve years—for sixteen years before a death rate of 17 per cent." One case given is of pneumo-typhus, treated like typhoid fever. Why? Grave cases seen on the twelfth day, up in four or five days, cured by a single visit. Cases of intestinal hemorrhage, bad hygienic surroundings, well on the twelfth or thirteenth day. Solid food allowed cases on the fifth day. One case of a medical gentleman able to see patients in his office. Case of old lady with preëxisting Bright's disease, complicated by repeated intestinal hemorrhage. All kinds of adverse conditions; no restrictions as to diet, exercise, bathing, yet no death! "The patient should be put on the treatment when first seen; if you await pathogonomic symptoms, will not always succeed in aborting." Does not the question of correct diagnosis of many cases claimed as cures arise here legitimately? The patient is said to have been cured before a positive diagnosis can be made. I ask in all fairness, would claims of success in any other known malady, based upon such evidence as this, be considered as aught but the assertions of an enthusiast? Nor is this all; this treatment for typhoid fever is to be applied when the patient applies "for treatment for diphtheria, la grippe, or any pathologic condition which would be benefited by intestinal or antiseptic treatment," and this is given as proof of the abortive treatment of typhoid fever. Furthermore, let us look more closely at the formulas and method of administration. First, I notice the necessity of careful compounding of

these formulas; very good, but I also note that, as prepared and furnished the profession by Parke, Davis & Co., they are better than if obtained anywhere else; a nice advertisement for that firm, and not exactly in line with the Code of Ethics of this ASSOCIATION. Formula No. 1, dose one tablet every fifteen minutes for twenty-four or forty-eight hours; (quantity of medicine taken in that time, calomel, guaiacol-carbonate, menthol, each 12 grains, eucalyptol q. s.). Formula No. 2, same only smaller dose, with the addition of thymol; to be given for several days until, during the period of administration, "five or six, not less, free evacuations of the bowels are secured." On fifth or sixth day Formula No. 3 is commenced, given every three or four hours, alternating with tablets Nos. 1 and 2. All this washed down "with copious draughts of distilled or sterilized, or if indicated, some good laxative or diuretic water." Just think of it, the annoyance of such frequent dosage and no time for sleep. When will the stomach take and tolerate nourishment? The constant unrest of such copious purgations, to say nothing of so apparent a fact as the exhaustion incident to it! Now "this treatment begun early, none other needed." It has failed in no instance, if seen before the eighth day. In the hands of other men, with 800 cases treated, there were only 9 deaths. Eliminate all ordinary causes of death except hemorrhage and perforation, and minimize these. One case is cited when patient died because of too small a dose, having received it every three hours instead of every fifteen minutes! Finally, I note many of these cases had treatment begun on tenth or twelfth day, normal temperature on nineteenth to twenty-third day. This proves nothing, because many cases that never have this marvelous treatment have normal temperature as soon as this.

Finally, we are told, "this language is unintelligible to the greatest thinkers." Is it not strange that after two years no authority has yet endorsed or commended this treatment? The more we know of the etiology and pathology of this disease, the less we feel inclined to try it. The issues are too serious, the stake too important to be made the object of such experimentation, and to renounce the convictions of years, enforced and established by long experience. I would be glad to have convincing proof of the brilliant results claimed, and be able to approach the treatment of my cases of typhoid fever with the assurance of its harmless nature and certainty of cure, but with expression of greatest regard for Dr. Woodbridge's earnest and honest efforts, I frankly tell him his assertions of success must partake more of the positiveness of a true scientist, backed by the evidence of correct diagnosis, other than that of bald assertions.

A recent writer says: "Intestinal antisepsis, in so far as the pathogenic organisms of enteric fever are concerned, is directed against specific germs not present in the bowels prior to the breaking down of the intestinal lymph elements, and is therefore largely inoperative; general antisepsis, if by that we are to understand a germicidal influence upon bacteriologic forms diffusely implanted in the lymph tissues throughout the organism, is a vain fancy wholly unsupported by facts. The parasite is more resistant to such influences than is the host. Clinical and pathologic considerations are alike opposed to the whole subject of the antiseptic treatment of enteric fever." (J. C. Wilson in Loomis-Thompson, "American System of Practical Medicine," Vol. i, p. 222). Again, "the antiseptic treatment has not a truly rational basis, while the extravagant claims of its advocates discredit their results." (Tyson's Practice, p. 46).

Treatment of convalescence.—Great care should be exercised during this period. No solid food should be allowed for a week or ten days after return to normal temperature. The diet should be restricted to milk, milk toast, eggs, animal broths. At the end of a week after return to normal temperature the patient may be allowed to sit up for a short period, increasing the time each day, and care should be exercised as to exertion. It must be remembered how much the heart muscle has suffered, and that it requires some time for it to be restored its original integrity. Over exertion, too, may cause a relapse. Should a relapse occur, no special treatment is required, but the treatment is the same as in the original attack.

210 W. Grace St.

PREGNANCY COMPLICATED BY OVARIAN AND FIBROID TUMORS. REMARKS UPON INDICATIONS FOR TREATMENT.

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It is not my purpose to enter into a systematic or profound discussion of the subject indicated in my title. It is rather to remark in a practical way upon the indications for treatment, and to give point and emphaais to my remarks by a few illustrative cases, that this paper has been written.

The presence of an ovarian tumor during pregnancy is a menace to the life of the patient. Abortion is not so prone to occur as in case of pregnancy complicated by a fibroid tumor. The dangers appear in consequence of serious happenings to the cyst and by the irritation produced by the presence of the tumor. These happenings may be mentioned in the order of their frequency: 1, peritonitis with adhesions; 2, suppuration of the cyst; 3, torsion of the pedicle; 4, gangrene of the cyst walls; 5, hemorrhage into the cyst.

In an able article by Mangiagalli,[1] of which a summary is given in the "Annals of Universal Medical Sciences" for 1894, he shows that primary suppuration of the cyst is of frequent occurrence. Of 150 ovariotomies, 5 were done during pregnancy and 11 soon after the puerperium. In 5 of these 16 cases, there was primary suppuration of the cyst; in 2, there was torsion of the pedicle with peritonitis; torsion of the pedicle, suppuration and rupture of the cyst in 1, and hemorrhage into the cyst in 1.

Playfair[2] has shown the great danger to the mother in allowing pregnancy to go to full term. He says, that, "Of 13 cases of delivery by the natural powers which I collected in a paper on 'Labor Complicated by Ovarian Tumors,' far more than half proved fatal."

Contrast these results with those obtained by Russian surgeons under operative measures, as shown by Gordon in his report of 1894. There had been up to that time 204 ovariotomies performed during pregnancy, in Russia. Twenty-one cases could not be followed. In 7 cases the uterus was wounded and 2 died. Of the remaining 176 cases, 164 recovered completely and 122 of these went on to full delivery. Twelve died.

We have thus 183 cases operated upon with 14 deaths, a fatality of .076 per cent., which is but slightly above the mortality occurring when the operation is done in non-pregnant women. The concensus of opinion as I read it in the literature of the last few years is decidedly in favor of removing the tumor as soon as diagnosed. Due regard must be given to the condition of the patient.

In our own case it was my belief that the combined shock of delivery and ovariotomy, in the exhausted condition of the patient, would speedily have proven fatal. Early operations, before complications arise, are to be resorted to, not only because less dangerous to the life of the patient, but also because less liable to induce abortion.

I can find no authority whatever in the late text-books, nor in recent journal articles by eminent writers, justifying an expectant treatment in cases of ovarian tumor complicating gestation. Prompt action is an imperative duty. A correct diagnosis is all-important and is not infrequently effected with difficulty. Fortunately, in some instances, the pregnant woman and the attendant physician both possess the knowledge that the tumor was present before pregnancy occurred. With this clue it is not difficult, as a rule, by palpation and percussion, to determine the presence, size, shape and location of the neoplasm. A distinct, circumscribed, fluctuating tumor, located to one side or above the uterus and changing its position with the growth of the uterus, may with little hesitation be declared an ovarian tumor, especially if it can be moved independently and is attended by none other than pressure symptoms. When suppuration occurs in such a cyst it is attended by a most profound effect upon the patient. Fever appears, and later, chills and night-sweats supervene. Torsion of the pedicle induces necrosis of the cyst walls or hemorrhage into the cyst cavity. In the former case fever and exhaustion gradually develop, and in the latter, shock, amounting in many instances to collapse. In all such instances the indications are for immediate interference.

I shall not attempt a review of the recent literature of pregnancy complicated by fibroid tumors, but content myself with stating what I believe to be the concensus of opinion of authoritative writers.

Pedunculated subserous fibroid tumors, unless large or adherent in unfavorable locations, give rise to few symptoms during pregnancy. When very large, however, or adherent, they sometimes induce pressure symptoms leading to impairment of the general health of the patient, and may even threaten life. Only under such circumstances do they call for extirpation, or induction of abortion.

Interstitial tumors of the body and fundus of the uterus seldom produce marked symptoms during pregnancy. It can not be denied, however, that when associated with pus tubes and pelvic adhesions, as they not infrequently are, the growth of the uterus is attended by pain, and sometimes general peritonitis and septic symptoms appear. Under the latter mentioned circumstances hysterectomy is indicated, but is attended by much danger to the mother.

Fibroma of the cervix not infrequently impedes labor and demands an extirpation of the tumor before delivery can be effected. That the presence of a small, pedunculated, submucous fibroid does not always induce abortion is demonstrated by our sixth case.

Hoffmeier[3] contends that the presence of a fibroid in the uterus does not tend to induce abortion, but the reported experiences of numerous other observers does not accord with his views.

That the presence of endometritis predisposes to abortion is generally conceded. Any one who has examined the endometrium, in uteri removed for fibroma, must have noticed the almost universal presence of endometritis of the glandular or polypoid forms. In this morbid condition of the endometrium may be found a prolific source of sterility and of abortion. When it exists in pregnancy the decidua vera becomes thickened and abnormally vascular, so that hemorrhage is prone to occur and abortion result.

I think it may be stated as a rule that fibroid uteri which do not well tolerate the presence and growth of the fetus and growth of the uterus, abort, so that it is safe to adopt a non-interference plan so long as gestation proceeds normally.

If we may truly estimate the views of the profession by the articles published of late in journals and books we may safely say that there has been during the last three years a rapid rise and gradual decline of the sentiment favoring hysterectomy and myomectomy in uterine fibroids complicating gestation.

The operation is new in this country. Long[4] in 1894 was the first American to deliberately extirpate the uterus in a case of fibroid tumor and pregnancy.

Hysterectomy should be the operation of choice when the tumor is of the pedunculated, subserous variety and when it is not too deeply imbedded in the uterine wall.

I wish to report the following cases as bearing upon the subject under discussion:

Case 1.—Mrs. A., aged 35 years; mother of four children. The last one was born Dec. 15, 1896 (two and one-half months ago). She was aware that she had a small tumor before she became pregnant. It grew somewhat during pregnancy, so that at term she was unusually large and suffered much from pressure in the upper portion of the abdomen, which region the tumor occupied during gestation. After delivery the tumor filled the lower portion of the abdomen, extending above the umbilicus. The child was born in a normal manner, weighed four and one-half pounds, was perfectly formed and healthy. The mother nursed the child and both did well. The tumor grew rapidly after delivery and when she came to me was much larger than a gravid uterus at full term. It was extirpated Feb. 26, 1897, two months and eleven days after delivery. There were many adhesions. The sac was adherent to the anterior abdominal wall in front, while the intestines and omentum covered the upper and posterior surface of the tumor. The adhesions were so recent that no difficulty was experienced in separating them, and the patient made an excellent recovery.

Case 2.—Mrs. B. was referred to me July 11, 1895. There was present a large interstitial fibroid of the uterus, and the patient was three months pregnant. She had borne one child since the tumor was discovered, and as the tumor was growing the patient felt uneasy, fearing lest the large size of the tumor might interfere with delivery. In view of the progressive emaciation of the patient and steady growth of the tumor, and her great anxiety, I favored operation but did not strongly advise it. Active interference was rejected. The patient went to full term and was delivered in a normal manner of a healthy child.

Case 3.—Mrs. C., March 29, 1896, had been in labor between one and two days, but had made little progress. Her abdomen was enormously distended and the upper portion contained a cystic tumor. After examination I concluded to attempt delivery first, and if successful operate a few days later. The os was dilatable and the head could be felt above the upper strait. Delivery was easily effected by turning. The patient was much prostrated after the delivery and I felt glad that we had not performed ovariotomy previous to the delivery. The patient rallied after a few hours and was doing seemingly well for five days, when suddenly symptoms of collapse appeared. She died two days later.

I am indebted to Dr. J. C. Webster, her attending physician, for the following facts: "The patient was tapped at the umbilicus March 20 and a considerable amount of fluid withdrawn. She was delivered on March 29. She lived until Sunday, April 4. On Friday before she died she suddenly collapsed but was kept alive until Sunday. An autopsy showed a hemorrhage into one of the compartments of the cyst. This hemorrhage was probably the immediate cause of the collapse and death. About two gallons of ascitic fluid were found in the abdominal cavity. The cyst wall had not been punctured when the abdomen was tapped. The tumor was multilocular. The cysts contained fluid of varying consistency, some thin, some thick and gelatinous. The tumor contained about eight gallons of fluid. The peritoneal surface was studded by a vast number of small cysts. I do not believe she could have survived an ovariotomy."

Case 4.—Mrs. D. Came under my observation when three and one-half months pregnant. I was called to consider the advisability of extirpating a fibroid tumor of the uterus. The tumor was small, not larger than a lemon, and in the anterior wall of the uterus. The patient was greatly agitated and desired an operation. I declined to remove the tumor. A few weeks later, viz., April 1, the patient came to my sanitarium still desiring an operation. The tumor had not grown, though the pregnant uterus had gradually and normally developed since my visit. The patient had felt motion a few days previously and the movements of the child continued active during her two weeks' stay in the sanitarium. During the patient's stay at the sanitarium she manifested marked nervous symptoms of a hysterical nature, but they gradually subsided and very nearly disappeared. Finally she concluded to remain in the city until after her confinement and went to a friend's home to await the event. Dr. Hodges assumed charge of the case. Soon after leaving the sanitarium she began suffering from uterine pains which seemed to indicate an impending miscarriage. She finally miscarried the latter part of May. Nothing untoward occurred at the time of miscarriage except that she was excessively nervous and made a slow recovery. I saw her Sept. 27, 1896. The tumor had diminished in size, at that time being scarcely largely than a walnut without its hull.

Case 5.—Mrs. E., aged 19 years. Married and mother of one child which died when eight months old. She and her physician gave the following history: During the last months of pregnancy she was unusually large and suffered from dyspnea, but the presence of a tumor was not suspected. After delivery she remained large and in a few weeks her physician had decided she had an ovarian tumor. It grew rapidly and was tapped three times. She was operated upon Sept. 3, 1896, eight months after delivery. There were most extensive adhesions of the sac to the peritoneum, intestines and omentum. The tumor was large, it and its contents weighing sixty-one pounds. It was a multilocular ovarian cyst of the glandular variety. She made an uninterrupted recovery and is now seemingly in perfect health.

Case 6.—Was one of pedunculated, submucous, fibroid of the uterus. I saw the patient about two years ago. The occasion of my being called was a profuse hemorrhage occurring ten days after a normal delivery. The os was patulous so that I introduced two fingers into the uterine cavity, when I encountered a pedunculated fibroid as large as a small lemon. The peduncle was probably an inch long and attached to the right of the median line upon the anterior wall of the uterus, while the uneven surface of the placental attachment was felt to the left. The tumor was friable, but the pedicle was firm. It was removed by torsion. The uterine cavity was irrigated with hot water and packed with iodoform gauze. No further hemorrhage occurred and the patient made an excellent recovery. The tumor was examined after removal and found to be necrotic.

Case 7.—Mrs. Z. was referred to me Dec. 3, 1896, with an interstitial fibroid tumor as large as a pregnant uterus at four months. She had been able to feel this tumor for thirteen or fourteen years above the pubic bone, and eleven years ago, two or three years after the tumor was first discovered, she had an accidental miscarriage at three and one-half months.

These cases are thus briefly reported to emphasize a few points I believe to be of practical value. They tend to show that a pregnant woman having a fibroid tumor is prone to miscarry, but that the presence of the tumor is not a menace to life, while the presence of an ovarian tumor complicating pregnancy frequently leads even in favorable cases to severe pressure symptoms, peritonitis with adhesions, and not infrequently (in less favorable cases) to the death of the patient.

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INTRA-UTERINE AMPUTATION.

Read in the Section on Practice of Medicine, at the Forty-eighth Annual Meeting of the American Medical Association held at Philadelphia, Pa., June 1-4, 1897.

BY M. H. FUSSELL, M.D.

PHILADELPHIA, PA.

The following notes and accompanying specimens are due entirely to Dr. Thomas W. Brockbank of Philadelphia.

I was called May 13, 1895, to attend Mrs. D., aged 36, healthy Pennsylvania German, mother of nine children, eight of which are living and healthy. Mrs. D. first menstruated at 15 years of age, has always been regular, and was married at 16. Her husband is

also of Pennsylvania German type and healthy. I found her in labor at the end of the seventh month of gestation; external palpation showed nothing abnormal; bimanual examination showed genital organs and pelvis normal; cervix three-fourths dilated; position L. O. A. with vertex presentation; membranes had already ruptured and the waters escaped. Dilatation was soon complete and under good uterine contraction the head advanced rapidly. The extension and rotation were normal and complete, body rotating one-half circumference. The head and shoulders having been expelled from the vagina the uterine contractions ceased. I passed my hand under the covers for the purpose of grasping the shoulders and completing the delivery, and in doing so I was attracted by a sharp substance coming in contact with my hand which indicated some abnormality. On making an examination I found that the left arm was missing from a point about one inch from the shoulder. A close inspection showed that the soft parts had appar-

ently been separated for some time, the end of the stump being entirely healed excepting a small central opening through which protruded a small sharp spiculum of necrosed bone. There was no bleeding or evidences of recent separation of the soft parts. After tying and separating the funis I made a vaginal examination in search of the missing arm, which I found in the lower portion of the uterus, the separated end showing appearances identical with the end of the stump. The placenta was normal and healthy in appearance. The child was fully developed for a seven months' fetus, except that it was cyanotic, which condition caused death forty-five hours later. The photograph herewith exhibited was taken after death.

The above brief description is made from notes taken at time of attendance. I have purposely refrained from any discussion as to probable cause of such phenomena, desiring to leave that part of the subject to the members of this ASSOCIATION.

I attended Mrs. D. again on May 26, 1896, at full term, at which time she was delivered of a healthy male child.

WHAT TO DO WITH THE WASTE WATER OF A COUNTRY HOUSE.

BY HARVEY B. BASHORE, M.D.
WEST FAIRVIEW, PA.

For the convenience of studying this subject, country houses are divided into three classes: 1. Those which have water service and use water closets for the disposal of excreta just as in the city. 2. Those in which the excreta are disposed of by some method of dry closet; sewers not being necessary, but some form of drain for carrying the waste waters from the kitchen sink, bath, etc. 3. Those which have no water service, no bath, etc., a condition found in by far the greater number of houses outside of the cities. In such a house a slop bowl should be put up in some convenient place, either in the house or outside, and connected with a surface or subsoil drain. In England, where much attention has been paid to the subject of draining isolated houses, the general opinion seems to be that some form of surface drain is the better. One described by Professor Poore, consisting of a perforated tin roof gutter suspended over the garden bed, I know from experience, is quite practicable. Another way is to dig a gutter about a foot deep and a foot or two in width. This, being properly graded, is lined with round river-stones or cobble-stones, such as are used for making street gutters, and connected by a tin or galvanized iron pipe to the slop bowl, kitchen sink or bath. This is probably the cheapest, most durable, and most efficient drain that can be made, and as the waste pipe opens into the drain above ground, there is no need of a trap. In some places, however, on account of lack of suitable land, a surface drain may not be practicable, and we have to resort to a subsoil drain, which may be made by digging a trench about two feet deep and twenty feet long, supposing the drain to be from the kitchen sink for a family of four or five. The bottom of the trench must be graded so that there is a fall of something like five inches in the twenty feet, then a narrow board is placed in the bottom and on this tiles are laid with their ends one-half inch apart. Then broken stones or coarse siftings of ashes, etc., are to be thrown in about the tiles and the trench filled with earth. Connect the sink and the drain with a lead pipe at one end, and at the other end a similar pipe lead to the surface and allow a free circulation of air through the drain—a very important point. These subsoil drains, although rarely causing much odor in the room, should be trapped as a precautionary measure. The waste from the bath may be disposed of in the same manner. For the disposal of the bedroom slops, a slop bowl connected to the same drain may be placed in the bath room, or wherever most convenient.

For the disposal of sewage from isolated houses, the only method is some form of surface irrigation modeled after the large city plants. Choose a suitable location, with sufficient slope, and build a shallow tank; from this tank extend a gutter through the field, and from this extend distributing gutters in the direction in which the sewage is desired to flow. The tank, of course, should be managed with an automatic flush and be discharged intermittently. If for any reason a surface tank would not be desirable, one may be constructed under the ground, if there is sufficient slope for its outlet.

The absorptive field should be planted with corn and not with vegetables.

GUMMA ON THE FACE, SIMULATING LACHRYMAL FISTULA.

BY ALBERT B. HALE, M.D.
CHICAGO, ILL.

Wherever there is connective tissue there we may find gummatous inflammation. I suppose this is an axiom in pathology, and yet it is one I am myself very often forgetting, so I am not guilty of disrespect if I assume that it is occasionally forgotten by others. The following case is given, therefore, to illustrate how careful one should be, not only in making an examination, but also in searching the history for some causal factor which may have been neglected in any treatment previously attempted.

Mrs. A. B., married, four children living, one born dead, was seen by me after she had been examined and treated for the last six months elsewhere. She complained of a sore on the nose just underneath the inner edge of the right lower lid, for which, she said, all kinds of washes, salves and injections had been tried without relief. The examination showed a swelling exactly over the location of the tear sac (right eye) with no acute inflammatory appearance, but with a hard infiltrated area of congestion extending into the surrounding tissues. In the center of the swelling was a fistulous opening with reddened edges, through which very little pus but considerable serum and granular débris escaped. The swelling was practically painless. To all appearances, there had been an abscess of the tear sac, but the patient reported no history of great pain and no pronounced discharge with immediate relief. On further examination it was found that a probe could be passed through the lower lachrymal punctum into the nose without appearing at the opening, and that a second probe passed through the fistula failed to come in direct contact with the first, but that, when they were made to rub against each other, there was normal or at least living tissue between them. A distinct history of syphilis could not be elicited, although she had had a sore throat before the eye was bad; but considering the indolent character of the swelling, its resemblance to a suppurating gumma, its resistance to ordinary antiseptic treatment and the suspicious circumstance

of a miscarriage and some sore throat, I made the diagnosis of gumma and gave the iodid of potassium .75 grams three times a day, and only a simple boric acid wash for cleanliness. Improvement began at once and at the end of six weeks the swelling had disappeared, the fistula had closed, lacrhymation had ceased and a probe passed into the nose as easily as through a normal duct.

Columbus Memorial Building.

SURGERY ONE HUNDRED YEARS AGO.

AN HISTORICAL STUDY

BY DR. GEORGE FISCHER.

DEDICATED TO THE GERMAN SURGICAL ASSOCIATION.

TRANSLATED FOR THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION BY CARL H. VON KLEIN, A.M., M.D.

VIII.—PROFESSORS OF SURGERY AND PRACTICAL SURGEONS (WUNDAERZTE).

(*Continued from page 1234.*)

Ferdinand Leber (1727–1808) was of much more importance; we have already mentioned his services in the abolishment of torture. Hyrtl has erected a small monument to this true son of Vienna (l. c. xxxiv). Leber's father made wigs, while his mother was a midwife. He was educated in a Jesuit school and became the pupil of a surgeon, under whom he learned bleeding and plaster-making during the three years legally prescribed. A small inheritance made him independent so that he could devote himself to the study of surgery. Jaus instructed him in anatomy and theoretic surgery, while he studied practical surgery in the Trinity (Dreifaltigheit) Hospital, and became the assistant practitioner there. Having become Master of Surgery, in 1751 he received a minor appointment as physician in Breitenfurt with a salary of one hundred thalers, and in the following year, through his patron de Haën, he was called back to Vienna as surgeon of the great Citizens' Hospital. Here de Haën held his clinical lectures, and in the difficult cases called Leber in consultation. He had at the same time supervision of the two great suburban hospitals, St. Mark's and Bäckenhaus. He understood how to use the rich school and opportunities, and while in this position he laid the foundation of his reputation as a practical physician. In accord with de Haën's desire he provided, at his own expense, a collection of anatomic pathologic specimens. In 1751 he became torture-physician and in 1761 professor of anatomy and theoretic surgery. A copy of a college note-book on anatomy which Hyrtl had the opportunity to inspect, contained an odd mixture of earnestness, humor and triviality. The scientific part was cut short and there followed anecdotes from his surgical practice and a flood of humorous, caustic thrusts—sometimes reaching an incredible degree of vulgarity—against all the ways and shortcomings of public life, especially in the realm of medicine; but with all this Leber was a good anatomist and his surgical chapters were very thorough and accurate. The surgical illustrations in his lectures were practical and intelligible. When, in 1772, the teaching of the medical faculty was modified by Baron von Störck, Leber was charged to take as the groundwork of his lectures the German translation of Winslow's "Exposition Anatomique" and Schaarschmidt's tables. This impelled him in the same year to publish an anatomic manual—"Lectures on Dissection," a very good compendium for that time. This ran through many editions and replaced the most popular text-books, such as Heister's "Anatomic Compendium," etc. His surgical practice claimed his whole activity. Until the founding of Joseph's Academy he was the only operator in Vienna. He relates, among other anecdotes, a case where he, without any assistants, performed a Cæsarean section in a dark room, and found the head so wedged in that in disengaging it the whole body of the mother was lifted up; she recovered in nine weeks. He had a great reputation as a surgeon and was much sought after by foreigners. In spite of his rough, bearish and forbidding manner he was generally beloved. All biographers testify that he was an honest, open, good-hearted man, strictly moral and religious, but extremely gruff. His dwelling was besieged by patients the entire day, he authorized several apothecaries to fill his prescriptions for the poor and charge them to his account. With Boerhaave, he said: "The poor are my best patients, for heaven pays their bills." In 1776 Leber became body surgeon to the empress, and as such was two years later ennobled. In 1786 he gave up the chair of anatomy, presented his fine anatomic collection to the university and until his death taught only theoretic and practical surgery. He was the recipient of various honors; the university conferred upon him the doctor's degree *honoris causa*; Emperor Francis I. increased his salary 500 guilders and bestowed upon him the gold medal of honor, with a chain. He died in his 81st year, leaving thirteen children; one of his biographers attributes to him thirty-six children as the result of thirty-six years of married life with one wife. Excepting an essay on surgical practice and observations on hemlock (1762) and several small surgical notes in Plenk's and Mohrenheim's contributions, he wrote nothing. Most of these papers treated of surgical instruments, a part of which he had invented, a part improved; for example, a lens-knife, a curved scalpel for extracting bulbi, pharynx and polypus tweezers, a knife for operating on rectal fistula, a ligature needle for the art. intercostalis, a stethoscope, an ear trumpet, a urine receptacle, etc. His aspirator for emptying pleuritic effusions deserves special mention. Leber was also the first surgeon who (as I shall show in Chapter xvi) made known the cure for aneurysm through direct and indirect compression (1770), and first applied the indiret compression alone to an aneurysm. These services laid, in part, the foundation of the just claim of German surgery to originating indirect compression for aneurysms, although they forget that they have contributed nothing to the development of this method.

In sharp contrast to his meager literary accomplishment stood the mental activity of his colleague, *Joseph Jacob Plenk* (1732–1807). The latter, who was born in Vienna, was the most popular text-book writer of his time, and left almost no science untouched. Surgery and obstetrics, anatomy and medical jurisprudence, eye and skin diseases, syphilis and children's diseases, pharmacy and pharmacology, etc., are all treated by him in his more than forty elementary works, outlines, and the like, much of which was not original. (Haller accused him of copying the experiences of the obstetrician, Saxtorph, without giving the name.) Plenk had no importance as a surgeon, and his surgical works are without scientific value. They are as follows: "Samml. u. Beob. über Gegenstände der Chirurgie," 3 Th. 1769–1775; "Lehrsätze der prakt. Wundarzneiwissenschaft

2 Th., 1774–1776; "Neues Lehrgebäude von Geschwülsten," 1769; "Pharmacia Chirurgica," 1775; "Auswahl der Chir. Arzneimittel," 1775; "Pharmacologia Chirurgica," 1782, u. A. Nevertheless he was a clever writer, who had the gift of expressing the kernel of his science in a complete and well-ordered, if somewhat exaggerated, manner, and kept himself abreast of the times. He owes it to this circumstance that his books were very popular in Austria for a long time for elementary instruction and ran through many editions. In the publishing of his compilations he found, "that in order to save many surgical notes from oblivion it was necessary that some man should have earnestness enough in his patriotic breast to take them up, taste to collate them and self-renunciation enough to expose himself to the prejudice of the critics." He resolved to be this man. The lions growled loudly, but it did no good. The contents remained meager. All his writings were addressed to German surgeons of the smallest measure of education. His work paused at this low stage, which is shown, among other ways, by the fact that Plenk never described the surgical remedies in a scientific manner, but only by their taste, smell and external appearance, because he feared that in any other way "he would shoot over the heads of his pupils." It is to be noted that he made many new remedies available, little known before, because at that time operations were preferred by the students, and they did not concern themselves much with the other departments of surgery. By grinding quicksilver with gum arabic he produced a preparation (mercurius gummosus), to be given mostly in the form of pills in syphilis, and this remedy soon became very popular. Plenk was for a short time in the beginning teacher of anatomy, surgery and obstetrics in Basel. In 1771 he became professor of surgery in the newly erected University of Tyrnau (Ofen), in Hungary, and from there went to Vienna as teacher of chemistry and botany in Joseph's Academy. There he became director of the army apothecaries, staff-surgeon, secretary of the academy, and for his services was elevated to the Hungarian nobility.

Contemporary with Plenk, *John Hunczovsky* (1752-1798) taught in Joseph's Academy. He was a man who devoted himself to his science with great zeal, but he had not the genius to elevate Austrian surgery. Born in Mähren and trained in the barber shop of his father, he came in his 20th year, poor in purse, to Vienna. There he was supported by the Princess Tarocca and the Countess Berghausen, and was sent by the former, upon Brambilla's advice for further training in surgery under Moscati at Milan. After two years, when his patroness had died, he returned to Vienna and became assistant to Professor Steidele, in the Spanish Hospital, afterward to Brambilla. The latter was much taken with his ambitious pupil, living in the closest relation with him, and in 1777 procured for him from Emperor Joseph the money for a foreign tour. For two years he remained in Paris, placing himself chiefly under the tuition of Louis and Sabatier, and visiting untiringly the Paris hospitals as well as the sessions of the Académie de Chirurgie. Then he lived a year in London, visited Pott, Else, Bromfield, Alanson, J. Hunter, and saw also the great marine hospitals in Portsmouth and Plymouth, and in 1780 went back to France, where he visited the hospitals of the various seaports. David in Rouen was never to be forgotten by him. At the end of this year he returned to Vienna by way of Turin and Milan. When, about this time, the medico-surgical school was established in Gumpendorf, Brambilla appointed him teacher of anatomy, philosophy, medicine and surgery, and provided him with a large ward where he held surgical clinics. Three years later he obtained, in Joseph's Academy, the professorship of operations, obstetrics and municipal health regulations. He is said to have operated little. Full of enthusiasm for the new institution, he was tirelessly active, and enriched it with many pathologic specimens. In 1791 he accompanied the emperor, Leopold II., to Italy, and was made court surgeon. Gradually the relation to Brambilla, to whom he had been devoted, began to grow cooler, as Brambilla conducted himself more as a superior than as a friend. Hunczovsky became dissatisfied with the development of the academy; his zeal lagged. At an operation for fistula of the rectum he scratched the end of his forefinger, whereupon inflammation and suppuration of the lymphatic glands of the arm and of the axilla set in. His gradual recovery was interrupted by the death of his friend, the poet Blumauer; a renewed and violent fever was quickly followed by death. The only one of his works which is read today with interest is his "Medco-surgical Observations of Journeys in England and France" (1783). In this was drawn a good picture of the hospitals existing at that time; certain new methods of cure and new instruments of foreigners were also described, and especially the successful treatment of kyphosis by Pott, and the same physician's recommendation of opium, in case of gangrena senilis; the use of electricity in case of rheumatic swelling of the joints was indorsed. Besides this he translated "Genge's Interpretation of Hippocrates" (1777); wrote a treatise on surgical operations (1785); translated Hamilton's "Duties of a Regimental Surgeon" (1790); and, with A. Schmidt, founded a library of the latest medical and surgical literature for the royal imperial army surgeons (1789). I have shown that it was not Dzondi, in the year 1829, but Hunczovsky in 1789, who first described congenital neck fistula, and cured it by injection of alcohol or splitting of the passage. He himself had no notion of the importance of this discovery, since he does not say a word about its origin or rarity in his treatise on the deformity.

Raphael John Steidele (1737–1821), and Mohrenheim distinguished themselves more as obstetricians than as surgeons. Steidele acted as such, at first in the Spanish and Trinity Hospitals in Vienna, then as University professor he entered the General Hospital, and held surgical clinics. He recommended simplicity in surgical matters, as well in respect to instruments as methods, but he had so little self-confidence that he "did not dare to impart his ideas to other surgeons, and hesitated to enlighten them, since each had the same right to call upon his own experience." In his collections of notes (four parts, 1776–88), much surgical material, with the necessary diagnosis, was supplied, but nothing of any great worth. It redounds to his credit that he followed Pott's opinion and energetically contended for a prompt operation in case of strangulated hernia; generally, a very healthy condition developed from this treatment. His treatment of hemorrhages, in which he contended for a special blood supply to each part of the body, was, through the frequent repetitions contained in it, uninteresting. *Joseph von*

Mohrenheim (1799) was second surgeon, obstetrician and oculist in the medico-practical academy in Vienna, and from there was called to St. Petersburg by the Empress Catherine of Russia, in 1783, as court physician and professor. He published many interesting cases in his "Notes" (1780), and in the *Wienerische Beiträgen*, a periodical founded by him (1781); but his reputation is based especially on a treatise on obstetrics, a beautiful work with forty-six copper plates (1791), which was compiled by him, on command of the Russian empress, "for the use of her empire."

A more vivid coloring is introduced into the portrayal of Austrian surgery by the monk's cowl, which the Bohemian, Joachim Wrabetz (born 1740), wore. He learned surgery in the mechanical way, and in 1762 was appointed to the Imperial Military Hospital in Prague. When again without employment he wandered over Hungary and finally entered the order of the Brothers of Mercy, which in 1768 sent him to practice in the Bohemian village Kukus, where there was a considerable monastery. Here he performed operations secretly, mostly at a time when the other brothers were tarrying at table; he is said to have successfully performed nineteen cataract operations, fourteen of them by incision. The villagers of Kukus looked upon him as a miracle of God and hung the altar of the Virgin with wax and silver eyes. Sent to Vienna three years later he passed the prescribed examinations and became chief surgeon in the Brothers' Hospital and performed many operations under the eye of Leber, by whom he was daily visited. Here was a surgeon who at least made an attempt to keep an account (in figures) of his activity. He operated upon forty cancerous swellings, ten cases of fistula of the rectum, fifteen harelips, twenty cases of strangulated hernia, four cases of lithotomy, with one fatal case (?). Several small members were amputated by ligature and four large amputations made, as well as one successful exarticulatio humeri and genu. He opened all cadavers and made eighty-six arm injections. He took a great deal of trouble to free the brothers of his order from the superstitious belief that they and their patients were protected from contagious diseases through the intercession of the pope. In 1776 he was called by the bishop-prince of Speier to Bruchsal to establish a hospital. He first went to Paris, visited the hospital of his order, met Frère Cosme, who was living at that time, and became very intimate with Louis, who in general did not love surgeon-priests; he then conducted the building of the hospital in Bruchsal and taught anatomy and surgery. The bishop made him his private surgeon and from Rome he was appointed prior of his order, and in 1782 the degree of Doctor of Surgery was conferred upon him by the University of Freiburg. He then became extraordinary professor of surgery in Prague. Wrabetz was much criticized because he recommended the making of amputations by ligature, instead of with the knife and he practiced it with success, of which more later.

The other Austrian surgeons were quite unimportant. There was *A. Beinl*, a professor of surgery in Joseph's Academy and successor of Hunczovsky and after Mederer's death chief army physician and director of the academy. He wrote on lymphatic swelling (1801). The professor of anatomy in Prague, *Klinkosch*, published a classification of hernia (1765). The master of surgery and teacher of anatomy in the imperial academy of fine arts in Vienna, *Posch*, in a treatise on diseases of the teeth suggested the use of the magnet in cases of toothache and urged the lancing of children's gums in difficult teething (1761). Posch also invented the foot-bed, which bears his name, for the treatment of ankle fractures (1774). *Sim Zeller*, first obstetrician and chief surgeon in the maternity house and the hospital in Vienna urgently recommended the common sponge as one of the best appliances in hemorrhages, and further endorsed the use of cold water in operations and hemorrhages, as well as water dressings in case of wounds and sores (1797). In this simple treatise, which was opposed with sharp derision, he was endorsed by V. von Kern, whose activity as director of the surgical clinic in Vienna extended into the present century. Simplicity in the treatment of wounds in Germany was inaugurated in the Vienna school. Kern also recommended the use of cold water in cases of fresh cuts and amputations, and for bruises, gunshot wounds and sores he suggested warm water. In the latter class of injuries he limited the misuse of plasters and salves. He treated wounds and amputations simply and without bandage or suture. His colleague in Joseph's Academy, *Zang*, belonging rather to our own century, contributed a very valuable work on operations, "Darstellung blutiger Operationen" (1813).

As it was in the empire so it was in the other parts of Germany; the soil upon which surgery was cultivated was a flat and uniform plain. There were no towering peaks or gigantic rocks, no wildly foaming mountain streams driving everything before them. The landscape was here and there broken by gently rising hills which lent it beauty and animation, and upon these small heights there flourished in *German surgery* a small number of *talented teachers*, many *industrious writers*, and a few *good practitioners*. *No genius* had been born and the new ideas which alone could have given German surgery a new direction did not appear. Even the best German surgeons, as Bilguer and Theden, had so little self-confidence that they took learned physicians in consultation in deciding whether their works were worthy of publication. If any one believed that Germany possessed any great men who could be compared to the best surgeons abroad he was greatly mistaken.

(*To be continued.*)

SOCIETY PROCEEDINGS.

Medical Society of the State of Pennsylvania.

Minutes of the Forty-seventh Annual Session.

(*Continued from page 1238.*)

Drs. WHARTON SINKLER and F. SAVERY PEARCE of Philadelphia gave a paper on

A STUDY OF EPILEPSY

with special reference to auras and to some other unusual features.

Table 1 contained an analysis of the auras recorded in the 315 cases; 144 definite auras were recorded, or in about 40 per cent. of the cases. The most frequent aura was stomachic, in 15 per cent. The next most frequent was aphasia; next a "vague" sensation. The initial sensations or movements exactly determined in the given cases of idiopathic epilepsy was 53, or in about 17 per cent.

Unusual auras.—One case presented the sensation of a tight band being bound about the arm, and at times the attack could be stopped by constricting the member above this site. Another case presented the peculiar ophthalmic aura [?] of a hideous face which preceeded the attacks of grand

mal. One case presented a peculiar odor of flowers ushering in the fit. Another case had odor of some indescribable substance which was associated with a sweet taste in the mouth.

Table 2 referred to the exciting causes in 315 cases as given by the patient or relatives. In 140 causes, were given, or in 46 per cent., convulsions of childhood most frequently; while fright, indigestion and injury were also commonly noted causes. Many other reflex sources were noted. It was considered that gastro-intestinal disorders were the exciting causes of attacks in many cases where the predisposition existed. It was particularly noted that puerperal convulsions seldom ended in epilepsy. Alcohol was considered a frequent cause, and specific disease not so frequent as assumed.

Table 3 was devoted to conditions of the heart, blood and circulation and to conditions of consciousness, semi-consciousness and sleeping spells (narcolepsy) and to the eyes and respiratory organs. These had no essential relation to the disease in question, unless associated with other lesions, or (as of the eyes) a remote nervous degeneration consequent upon prolonged idiopathic epilepsy.

Table 4 referred to intelligence, which was fair in 61 per cent., very bright in 19 per cent., poor in 17 per cent., imbecile in 3 per cent. The disposition was notably bad in 26 cases. Nutrition was good in 50, bad in 76, otherwise fair. Some peculiar delusions were noted in this table, as sequels of the attacks—such as turning into a skeleton; of God going to punish him for last act he did, ever so simple. There was one case bled in status epilepticus and one case bled after a severe attack, in both of which the blood was dark and hypertoxic. The urine of several cases after attacks showed a tendency to hypotoxicity. The authors pointed out that Drs. S. Weir Mitchell and Stewart were restudying the subject of the blood and excretions and secretions in epilepsy and that no definite conclusions were arrived at as yet.

Table 5 recorded the number of attacks, the heredity cases complicated by chorea, cases with relaxation of sphincters, patients having conditions which excite attacks definitely determined (121). General muscular paresis was found in only 7 cases.

Table 6 detailed the time of day when attacks most frequently occurred. It was found that from 6 P.M. to 3 A.M. gradual attacks were most frequent. Next most frequent after 3 A.M. until waking hours, and least frequent in the day time.

It was given as a cause for night attacks that inhibition of the coördinating brain centers existed at night and that the fact of sleep itself being the most important factor in lessening this inhibition was suggested as allied to dream states in which the sensory apparatus is well known to play weird penomena.

One case never had a day attack, excepting when asleep. Petit mal is probably not noted at night, because the patient is seldom awakened by it.

Table 7 referred to remissions. Several cases had one attack in four years; one had an attack in two years; two, three and four attacks a year only occurred in many cases. One case had the remarkable remission of twenty-one years, one of twelve years and others of varying intervals. Two cases died in status epilepticus. The rest of the table was devoted to the initial cry, which occurred in 16⅔ per cent.; tongue biting which occurred in 21 per cent. The age at beginning of attacks was recorded in another table, as was also the duration. The authors then devoted consideration of diagnosis, prognosis and treatment, suggesting hypnotism as one of the newer means to be tried thoroughly. All reflex causes should be sought, especially gastro-intestinal.

MALPRACTICE SUITS AND THE REMEDY.

Dr. B. H. DETWILER, Williamsport—The success that has attended the efforts of designing patients in furnishing suits of malpractice to intriguing attorneys upon the more opulent of our profession, leads us in self-defense to propose a plan today for our protection, for your consideration.

The physician from the nature of his work is isolated, hence more amenable to the attacks of this class of robbing parasites than any of the learned professions. The onset is generally made upon surgeons, from the nature of their work; the injuries incident to life, many of which have been deformities that are inevitable, and they furnish specious pleas for this designing class of conspirators for speculative purposes. This combination requires no capital, and the division of profits with designing lawyers, is unfortunately in many cases so large as to excite the cupidity of those who have secured gratuitous service from their victims. This has become so patent that it requires no special illustration among our surgical associates. The case of Anna Dickinson against the borough of Pittston and the physicians who sought to help her by placing her in the State Institution for Insane at Danville, for her recovery as directed by the law in such cases, has excited much comment and a large expenditure of money in its defense, which after four years litigation has terminated in an award of six cents damages, with the costs not arranged for. With a case as apparent as this, a brilliant public woman, with aberration of mind due to known causes, places the guardians of the public and the necessary physicians of standing, in litigation for $150,000 while they were carrying out the plain duties of the law for the protection of the public. Such a possibility was not entertained by the framers of the laws for the protection of the insane, nor for the necessary medical supervision. Yet here were four years of litigation in the highest tribunal of the State, and two years ago it was fortunately not decided on account of the death of the wife of one of the juryman, which stood 8 to 4 for the plaintiff. It is now terminated. Who will reimburse these physicians for these four years of litigation because they carried out the letter of the law provided for the care of the insane? Who of us are exempt from any of these dangers? Accepting these facts, what is the remedy? It is in the more thorough organization of our medical men, the standing of shoulder to shoulder, and the general defense for the individual. Organization is the remedy. Its best illustration is that of the Granger. A few years ago there was nothing more feeble and now with its more solid organization there is nothing more influential nor stable in legislative work. They have votes and use them for their protection. We have from 8,000 to 10,000 physicians in this commonwealth who have intelligence and influence, yet when the medical examiners board was formulated by this body, there never was a more important measure for the protection of the health and lives of the commonwealth. It was absolutely ignored, defeated until the county societies under the leadership of our late President, Dr. McCormick, and his able corps of assistants, were so organized that its political influence was felt in the legislative halls and then only by the formation of these boards of examiners. Comment is useless. This body of representative men, each individual able at any time to control from 50 to 100 votes, so feebly coherent, that they have no political influence and unable to protect their members from this invasion of blackmailing intriguers. The State Medical Society should be to the individual member as the government is to its citizens, an ægis of protection. When Paul said "I am a Roman Citizen" the shackels fell from his limbs and the same protection is extended by the national government to its most humble citizen at home and abroad. This protection by the State Medical Society would bring under its banners every eligible medical man in the State. I would suggest that a special committee be appointed by this body to investigate all charges of malpractice with power to act. When a suit is instituted this committee shall investigate, and when not due to carelessness and incompetence, it shall take charge of the same. Employ council and defend the case with the best legal talent obtainable, with all the power of this great society and defray the expense out of its funds. In order to carry out this measure, a special fund should be created by a specific assessment upon its members. This State protection would make practical evidence of its power and deter these parasites in their nefarious work. When the litigation is due to the carelessness or incompetence of the practitioner the committee should after full examination leave the case to its own defense. With a more complete county organization, and the enrolment of every worthy medical man, there would not be a more powerful organization in this commonwealth than our grand old State Medical Society.

In the afternoon, Dr. W. E. HUGHES, Philadelphia, read the Address in Medicine, reviewing the general subjects which had been brought before the profession during the past year and the matters now most attracting the attention of the physicians.

Dr. J. E. WILLETTS, Pittsburg, read the Address in Ophthalmology. He devoted his paper to personal observations, antiseptics and anesthetics in ocular operations, perimetry and the corneal circulation. All applications to the eye, if they cause hyperemia of the conjunctiva, are to be avoided. Under this come formaldehyde and eucain. They have no advantage over hydrarg. bichlorid. The tendency to destroy the cutting edge of the knife with the bichlorid may be overcome by reflushing the conjunctival sac with a solution of boric acid. Non-irritating antiseptics are essential. Eucain is a decided irritant; it must not be used. It may relieve pain, but increase the conditions that produce it. Cocain is the ideal anesthetic here. Frequent instillations into the eye are not needed and are bad, 3 drops of a solution 4 per cent. is what he uses for an extraction with iridectomy. Avoid a too profound anesthesia with cocain. Perimetry is only an important adjunct in ophthalmology. Without the ophthalmoscope ophthalmology would be an imperfect science. We can thus readily differentiate diseases. It has been thus developed that we can take the field of

vision with prisms; that there is no contraction of the field for transmitted light; that there is no contraction of the field for color; that all that is necessary for the normal retina to perceive color at its periphery is to receive the impression, etc.

The next paper was by Dr. F. S. NEVLING, Clearfield, on

BRIEF VIEWS OF LESIONS AND TREATMENT OF TYPHOID FEVER.

There are certain general features belonging to all fevers, as chill, followed by increase of the heart action, increase of heat, etc. The chill undoubtedly originates in some impression of a depressing character upon the nerves, most probably upon the great sympathetic and vagus nerves; the diminution of vital nerve force is followed by increased action of the heart, inducing an increased metamorphosis of the carbonized and nitrogenized material of the blood and tissues, producing increased diminution of carbonic acid gas by the lungs, and urea and uric acid by the kidneys and other secretory organs. The balance between the tissue metamorphosis and the excretion of effete material is not, however, always preserved, and the albuminoid material thrown into the circulation by the rapid disintegration both prevents due oxidation of the blood in the lungs, and acts as a peccant matter upon the nervous centers, obstructs the capillaries and induces that condition known as typhoid. The impression upon the nerves may arise from poisonous matter introduced into the circulation from without, or from matter generated within the circulation itself, or the impression may have a local origin from a wound or injury. Once the impression is made, the depressing influence applied to the nerves controlling the circulating organs, increased heart's action follows and increased heat from increased respiration, and increased tissue change.

Typhoid fever presents, however, distinctive elements that characterize and separate it from all other fevers. Its most distinctive features are its bowel lesions, its inflammation, ulceration, or sloughing of the solitary and agminate glands of the lower portion of the ileum and extending into the cecum.

There are some physicians who maintain that it is right to lock up the bowels and keep them locked up in typhoid fever, while others maintain that the looseness of the bowels present in most cases of typhoid fever is an effort of nature to throw off by these intestinal evacuations the sloughs and irritant poisons that aggravate the disease by being retained in contact with those glands. The latter views I think to be the most rational, not that I advocate the utility of an exhausting diarrhea, but object to the locking process. I furthermore think that cases in which these sloughs are retained in the bowels are more liable to hemorrhage and perforation, the result of the secondary lesion from inoculation by the retained sloughs causing deeper ulcerations of the bowels; but as catharsis in this disease is a delicate operation, easily started but controlled with difficulty, great caution should be exercised in the use of cathartics, and although I coincide with the opposition of the locking process and keeping locked, yet I hold the view that loosening, whether the result of the disease or the action of medicines, is a weakening process and should be restrained within due bounds in the treatment of typhoid fever. There are certain general remedies applicable in all forms, and special remedies adapted to each disease and calculated to meet their individual aberrations from health. Sponging and the bath to reduce febrile heat are general remedies applicable in all cases of typhoid fever, and suitable stimulants and foods for sustaining the heart's action are also general remedies. Among a great many practitioners alcoholic stimulants are preferred as best for sustaining the heart's action, by their absorption into the circulation directly reaching the nervous centers, and also for furnishing carbonized material to the blood for lung combustion, thus sparing the fat and tissues of the body, and further for their stimulant action upon the blood vessels, helping to prevent or overcome capillary obstruction and stasis. Turpentine is also a valuable stimulant, especially with regard to preventing and overcoming capillary obstruction, but it is so valuable as an eliminating diuretic as well as an antispasmodic, relieving the irregular contractions of the bowels and attendant pains, that its stimulant power is often overlooked.

Appropriate food is another general remedy; in the choice of diet three things are to be kept in view. First, the powers of digestion are enfeebled; we must, therefore, choose nutriment easy of digestion. Next the blood is loaded with albuminoid material from tissue degeneration, therefore the diet should not be too highly nitrogenized lest we add to the offending material in the circulation and increase the labors of the secretory organs. Third, the bowels are sore and irritable, therefore the food should be bland; and, again, the ileo-cecal sphincter is ordinarily in an irritable or inflamed condition, and the opening from the ileum into cecum narrowed, therefore the diet should be fluid. Milk commends itself as a highly valuable article of diet, being fluid, easy of digestion and not too highly nitrogenized. Glycerin has been introduced to the British professional public as a valuable article in the treatment of typhoid fever. It commends itself as being nutritious, bland, antiseptic, alterative, containing no nitrogen, and preserving its fluidity throughout the process of digestion. I can add my testimony to its value, having used it with advantage in my own practice in the treatment of typhoid fever. Eliminatory remedies, as cathartics, diuretics, sudorifics, etc., have their uses. Cathartics, as I have already remarked, should be used with great caution in typhoid fever; owing to the predisposition to diarrhea already existing in most cases of the disease diuretics are of great value. Turpentine holds, in my estimation, the highest place, not only possessing diuretic properties of a high order, but controlling the pain and irregular spasmodic action of the bowels, preventing and overcoming capillary engorgement and stasis; conjoined with the above remedial agents I make use of chlorate of potash and chlorin for their known action in exciting secretion, keeping the tongue and mouth moist and free from sordes, thereby relieving thirst, promoting the patient's comfort and facilitating the act of swallowing, also for the well known disinfecting properties of the chlorin and its destructive influence upon the lower forms of vegetable and animal life. The course of treatment that I have adopted and found satisfactory, is as follows: Should the diagnosis be typhoid fever the treatment is begun by a bath or sponging of the surface followed by chlorate of potash one drachm, muriatic acid, chemically pure, one drachm, distilled water four fluid ounces, shake and add pure glycerin four ounces. Give one teaspoonful every three hours, with a strictly liquid diet, generally milk, beef tea, etc. Should pain in the bowels supervene, turpentine, ten to fifteen drop doses in mucilage of gum acacia, or dropped on sugar, at short intervals until relief is afforded. When the urine is scanty or micturition is difficult or painful, turpentine is also given in the same doses as an elementary diuretic. When stimulation becomes necessary it is carried out by means of milk punch, combining the alcoholic with the nutrient. Stimulation is deemed necessary as soon as the fur upon the tongue assumes a brownish cast, or the pulse loses it volume, or low delirium appears. The bath or sponging to reduce febrile heat is continued throughout the treatment and is used whenever the febrile heat is excessive. Under this treatment, strictly carried out, the cases seldom assume a severe type. The fever is commonly restrained within moderate limit, the tongue and mouth remain moist, the teeth and lips free from sordes, diarrhea is seldom excessive, hemorrhage from the bowels is rare, convalescence often commences in fourteen days from the onset of the disease, and seldom later than the fourth week. Of course remedies are used to restrain excessive diarrhea and produce sleep when wakefulness disturbs the patient. Intestinal hemorrhage, if it is slight, does not call for other measures of treatment than the most absolute rest of the patient, the restriction of his diet to substances being most readily digested and absorbed in the stomach and upper intestine, and even of that kind of food by all means not more than can be properly digested and assimilated. Food and drink are to be iced and lumps of ice held in the mouth and swallowed. The action of the bowels are to be as far as possible controlled. I never had but four cases of exceedingly serious hemorrhage. In one case the hemorrhage came on suddenly (during the first week) and was very large. The temperature fell at once from 104 to 97. Another patient had nine very severe hemorrhages during his extended illness. In these cases I gave aromatic spts. of ammonia and brandy as a stimulant.

Dr. W. W. KEEN of Philadelphia reported

THE REMOVAL OF AN ANGIOMA OF THE LIVER BY ELASTIC CONSTRICTION EXTERNAL TO THE ABDOMINAL CAVITY, WITH A TABLE OF FIFTY-SEVEN CASES OF OPERATION FOR HEPATIC TUMORS.

He referred to a second case on which he has operated for angioma of the liver; a woman aged 53, whose health had been failing for five years; for three years she had noticed a tumor at the pit of the stomach, which pained her considerably. Upon examination a tumor was felt to the right of the median line midway between the level of the umbilicus and the ensiform cartilage. It was quite tender upon pressure, slightly movable in respiration, dull on percussion and measured 7.5 cm. in diameter. The diagonsis lay between a tumor of the liver, of the stomach, of the colon or of the omentum, although the symptoms did not point directly to any one particular organ. An incision extending from the border of the ribs to the level of the umbilicus in the middle of the right rectus

revealed that it was an angioma at the lower border of the liver. Such tumors are usually only discovered at postmortems, never having given rise to symptoms. Dr. Keen did not think it wise to attack it with the knife or to attempt to amputate it completely even by the Paquelin cautery, in view of the large vessels leading into it. Accordingly he cut down through the liver tissue obliquely on each side of the tumor so as to make an artificial pedicle for the tumor. The base of the tumor was then encircled with an elastic rubber tube. The tumor was then drawn through the abdominal incision, the wound being partially closed and an iodoform gauze collar packed around the tumor and below the elastic ligature. On the sixth day the rubber ligature was removed and as there was but a small pedicle left, this was divided by a pair of scissors without the loss of a drop of blood. Cicatrization became complete in fifty-two days.

Up to this date fifty-seven cases of angioma of the liver are on record with a mortality of 16.7 per cent. A table of all these cases by Dr. Geo. W. Spencer was presented with his paper. Age seems to have no special influence, but sex on the contrary is very striking; forty-one were women as against eight men. This disproportion is believed to be due to the constriction of the chest in women from their clothing.

The diagnosis in most of the cases was in error, and it was a striking fact that in a large number of the cases there was an area of tympany between the tumor and the hepatic dulness, which, naturally led to the conclusion that the tumor was not connected with the liver. The duration of the tumor, even in some of the malignant cases, is striking; ranging from less than a year to twenty years. There are twelve different varieties of tumors, the most common being syphiloma and hydatid cysts. The size varied from very small ones to the size of an adult's head.

Four methods have been employed for the removal of such tumors: 1, the ligature; 2, packing with gauze wet with hot water; 3, the cautery; 4, the elastic ligature. Not uncommonly two or more of these methods have been employed.

The conclusions reached by Dr. Keen are: 1, that tumors of the liver and even large portions of the liver can be removed without undue disturbance of its function; 2, that the escape of bile into the peritoneal cavity is not usual after such an operation; 3, that the two dangers of hepatic operations are sepsis and hemorrhage, especially the latter; 4, the removal of a tumor can be done by ligation, blunt dissection, the cautery, the knife or the scissors, or by a combination of these methods; 5, in case a syphilitic tumor is suspected, no operation should be done until after a full trial of anti-syphilitic treatment has been made and failed; 6, in all cases of doubt and, provided time allows, after a fair trial of anti syphilitic treatment, an exploratory laparotomy should be done. If the case is unsuitable for operation because it is syphilitic, or by any other reason, the abdomen is to be closed and very rarely will any mischief be done.

Dr. Keen's paper provoked free discussion, entered into by Drs. Kane, Montgomery and others.

Dr. S. AYRES of Pittsburg followed on "A Case or Hemorrhage in the Left Frontal Lobe Simulating Hysteria."

Dr. C. HUDSON MAKUEN of Philadelphia gave the details of 200 cases of speech defects at the Polyclinic in Philadelphia, showing marked improvement under treatment.

(To be continued.)

Illinois State Medical Society.

Abstract of the Proceedings of the Forty-seventh annual meeting, held at East St. Louis, May 18, 19 and 20, 1897.

(Concluded from page 1196.)

SECOND DAY—EVENING SESSION.

In the evening the Society went to St. Louis, where a special session was held in honor of it at the Century Theater by the Missouri State Medical Association. At this session addresses were delivered by Drs. J. H. Duncan of St. Louis, R. J. Sloan of Kansas City and A. W. McAlester of Columbia, Mo.

THIRD DAY—MORNING SESSION.

SECTION THREE.

Chairman, Dr. O. B. WILL, Peoria.
Secretary, Dr. R. C. MATHENY, Springfield.

A symposium of papers was presented in this section on

THE DUTY OF THE MEDICAL PRACTITIONER TO THE STATE.

The first one was read by Dr. L. R. RYAN of Galesburg, on "The Accumulation of Vital Statistics." The author stated that the object of vital statistics was to classify and arrange the facts relating to the quantity and character of human life under different circumstances, for the purpose of determining the effect upon it of each of these effects taken singly, or two or more of them acting together. The results so obtained would form an important part of the scientific foundations of sociology, political economy and preventive medicine. It deals with masses of men, not individuals, and its conclusions are for the most part applicable only to large bodies of people; yet its data are derived from individual records, and its results are accepted in many cases as a sufficient guide for individual action. One of the most interesting subjects was the relation of race and color to birth rate, to certain forms of disease, to the liability to certain forms of disease at certain ages. The author said this country was the great mixing ground of the races, and while the mixture is rapidly becoming so intricate as to make it almost impossible to distinguish the different strains, still there were many groups of men of distinct races among whom the record of disease and death would form valuable material for study upon this important theme. Accurate data with regard to death could only be ascertained by a system of registration of deaths, made at the time of death. Repeated experience has shown that 70 per cent. of all deaths can be collected at the end of a year for the preceding year by any present system of enumeration, and it is now well recognized that a complete registration of deaths can only be obtained by legislation which forbids a burial until a permit has been granted from a central office, which permit is issued only on the certificate of a physician, setting forth the cause of death, and other facts in connection with it which are of importance.

Dr. EMMA J. LUCAS of Peoria, dwelt upon "The Physician's Duty to the State in relation to Local Sanitary Affairs," saying that the competent physician finds that he has other duties than those of self and more work than was apprehended in the old-time expression "practicing physic." He has great duties to the community in which he lives, requiring of him no half-hearted service in the prevention as well as the cure of disease. While the speaker appreciates that the physician's duties are many, constant and tiring, yet because of the profession chosen by him this is only what he should expect. Furthermore, he is expected to be a person of superior parts as well as of superior moral character, and in the author's opinion the competent physician can always find time and patience to do one thing more.

Dr. R. C. MATHENY of Springfield, followed with a paper on "The Duty of the Medical Practitioner to the State in the Detection of Crime and Punishment of Criminals."

The only crime which the author considered in his paper was that of abortion, and he said that the criminals were those connected with its practice. The persons with whom the State had to deal were the woman and the aider, in case there is an associate. It was hardly to be expected that the civil authorities would ever be instrumental in dealing effectively with the woman who endeavored to defeat the timely fulfilment of her own pregnancy. The defeat of Nature's purposes by self-inflicted devices could not be successfully coped with. The efforts of the State and of morality must be in other direction.

The Chairman, Dr. O. B. WILL, read the final paper of this Section, which was entitled "Legal Control as a Factor in Restricting the Prevalence of Specific Disease."

The author stated that in establishing the value of legal control as a factor in restricting the prevalence of specific disease, account necessarily has to be taken of popular feeling respecting the matter, regardless of any legislative expression. Not only that, but the sentiment of those individually most directly concerned must be given due weight if effectiveness is to be expected. A healthy and tolerant public sentiment is found to be of the utmost importance in securing acquiescence in the adoption of any line of action so closely concerning individual freedom. As a factor in restricting the prevalence of specific disease, the writer looks upon legal control, as it is potentially represented in existing administrative bodies, as absolutely inefficient and worthless. At the same time, he is impressed with the conviction, born of personal observation and experience along the line under discussion as well as in eleemosynary investigations and work, that a properly organized effort, under authority of the State, with discretionary powers, and taking into active consideration the various elements of influence herein considered, could attain nearly all that is so badly needed, even in the most delicate relationships of life that concern public and individual health. Even male prostitutes, the confessedly most difficult class to dominate and the most dangerous to the community, can be reached and controlled by an authoritative and, at the same time, judicial organization working through the profession, while the sensitive class should be effectively reached through direct pressure under legal protection.

REPORT OF NOMINATING COMMITTEE.

Your committee recommends Galesburg as the next place of meeting. Recommendations:

For President—Dr. J. M. G. Carter, Waukegan.
First Vice-President—Dr. T. J. Pitner, Jacksonville.
Second Vice-President—Dr. J. T. McAnally, Carbondale.
Permanent Secretary—Dr. E. W. Weis, Ottawa.
Assistant Secretary—Dr. J. E. Cowan, Galesburg.
Treasurer—Dr. G. N. Kreider, Springfield.
Members of Judicial Council—Dr. C. C. Hunt, Dixon; Dr. Hugh T. Patrick, Chicago; Dr. C. DuHadway, Jerseyville.
Committee on Necrology—Dr. John H. Hollister, Chicago; Dr. O. B. Will, Peoria; Dr. E. J. Brown, Decatur.
Committee on Medical Legislation—Dr. J. W. Pettit, Ottawa; Dr. Harold N. Moyer, Chicago; Dr. D. W. Graham, Chicago; Dr. Daniel R. Brower, Chicago; Dr. J. B. Maxwell, Mt. Carmel; Dr. John B. Hamilton, Chicago.
Committee on Medical History, consisting of members of forty years' standing—D. N. S. Davis, Chicago; Dr. Robert Boal Lacon; Dr. Edmund Andrews, Chicago; Dr. E. Ingals, Chicago; Dr. J. H. Hollister, Chicago; Dr. J. S. Whitmire, Metamora; Dr. T. D. Fitch, Chicago; Dr. De Laskie Miller, Chicago.

SECTION ONE.

Chairman, Dr. A. R. Edwards, Chicago.
Secretary, Dr. F. P. Norbury, Jacksonville.

SECTION TWO.

Chairman, Dr. J. L. Wiggins, East St. Louis.
Secretary, Dr. A. E. Halstead, Chicago.

SECTION THREE.

Chairman, Dr. D. R. Brower, Chicago.
Secretary, Dr. C. B. Johnson, Champaign.

The Nominating Committee further recommend that an appropriation of $100 be made for the use of the Committee on Legislation.

Committee of Arrangements.—Chairman, Dr. J. F. Percy, Galesburg; Dr. D. W. Aldrich, Galesburg; Dr. Delia Rice, Galesburg, Dr. L. S. Lambert, Galesburg.
Committee on Medical Societies—Dr. C. W. Hall, Kewanee; Dr. J. A. Baughman, Neoga; Dr. W. R. McKenzie, Chester.

Respectfully submitted,
D. R. BROWER, *Chairman*.
E. J. BROWN, *Secretary*.

The following resolution prepared by a sub-committee of the Nominating Committee, we respectfully submit:

Resolved, That the Illinois State Medical Society hereby extend a vote of thanks to Dr. John B. Hamilton of Chicago, for his eminent and efficient services rendered as Permanent Secretary of this Society for a term of five years.

C. C. HUNT,
E. P. COOK,
J. O. DECOURCY.
Committee.

On motion, the reports of the Nominating Committee and sub committee were unanimously adopted.

Dr. E. P. Cook offered resolutions of thanks to the Committee of Arrangements and the people of East St. Louis, which were unanimously adopted, after which the Society adjourned to meet in Galesburg, the third Tuesday in May, 1898.

SELECTIONS.

Psittacosis.—At Genoa, it is reported that fourteen cases of this affection, with eight deaths, have occurred. The last death was that of Signor Gavino, brother of the captain of the *Manilla*, in which the two infected parrots were brought from Brazil. Now Captain Gavino himself, his wife, and his daughter are under treatment for the same malady. The Genoa city board of health was not an hour too soon in its warning to the public against harboring these domestic pets, as from being sporadic the broncho-pneumonia they convey has assumed almost an epidemic form. Meanwhile, the susceptibility of the parrot to pulmonary disorders, above all, to tuberculosis, is being put *en évidence* by the medical journals, most of which refer to the classic treatise on the subject by Dr. A. De Gordon y Acorta, a physician of Havana. The malady, often hereditary in the bird, is invariably accentuated by the close confinement and the privations encountered during the voyage to Europe, where again, even if it arrives in fair health, it is for the most part exposed to insanitary conditions, under which it often contracts tuberculosis and broncho-pneumonia from proximity to human sufferers from these ailments. In Berlin the profession has long been alive to the danger of harboring and petting the bird, the veterinary school there having had 154 parrots under observation, and 54 of them having been found by bacteriologic tests applied by Prof. Eugen Fröhner, to be laboring under advanced tuberculosis. The lesson, so familiar on the continent, is worth repeating in the British Isles, where the parrot is imported from nearly every tropic or sub-tropic colony, and where well nigh every one of its 355 species is typically represented. Dr. W. T. Greene of London, in the *Lancet*, May 8, commenting on the diseases of the parrot and canary bird, takes a very much more favorable view of that of the former as follows: "If a parrot is rationally treated, there is far less risk from its society than there is from that of the average dog or cat, and no one need be under any apprehension of contracting psittacosis, unless, as I have said, he or she should be stupid enough and disgusting enough to become voluntarily infected by the morbid secretions from an ailing bird; and as many of these are possessed of an immense fund of courage and endurance, and show no symptom of being ill until the last, it is well that all intimate connection with them should be strictly avoided, and if due care is taken in this respect no one need be under the slightest fear of contracting any complaint, but ordinary rules of cleanliness must not be ignored, and if they are, it is not the parrot, but its negligent owner that should be blamed for any untoward consequences that may follow. Other birds, besides parrots, are liable to epidemic disease that very readily become endemic, and is then transmissible by atmospheric infection to other animals and even to human beings. I refer to the dreaded 'canary plague,' which is a form of splenic fever, near of kin to the goal fever of former times, that had its origin in crowding and filth, as this terrible disease most undoubtedly has. Case after case has from time to time been brought under my notice, where a canary-keeper has lost his entire stock through incautiously buying a new bird at an infected shop, and once an outbreak occurs it can only be stamped out, like the pleuro-pneumonia of cattle, by instantly destroying every bird that shows the least sign of illness and burning the cages and everything connected with them; no form of disinfection is to be relied on in such a case, for even stoving has been found to fail. There is no doubt that this complaint, like the kindred disease known as chicken cholera, is due in the first instance to crowding in wooden cages saturated with the droppings of generations of birds often—too often—dieted on unnaturally stimulating food and kept at tropical heat, or above it, to ensure early broods. The spleen seems to be the principal seat of the disease; it is enormously enlarged and studded with points of white matter which are not tubercular but *sui generis*, and the whole system swarms with microbes. I know of one case of canary plague where some children who lived in the room where the cages were kept, contracted a feverish affection, accompanied by a rash that had a superficial resemblance to that of measles, but did not run the course of that disease, though taken for it by the medical attendant (not myself); however, the symptoms, which were not severe, the temperature not rising above 100 degrees F., quickly subsided when the children were moved elsewhere. Every one of the birds, however, about fifty or so in number, died; and after the room had been fumigated and the cages cleansed thoroughly, as was supposed, and disinfected, a new stock of birds was acquired, but quickly followed their predecessors, and then the fancier gave up in despair. But even the canary plague need be no bugbear for householders, if only due attention is paid to ordinary sanitation; but filth always has engendered disease and always will do so, but it sounds to me irrational to condemn the innocent victims when it is really those who by neglect or ignorance of

the common laws of health, and especially of the right way of managing birds, who should be blamed. There will be no psittacosis, or canary plague, or chicken cholera, either, if the subjects of these diseases are treated properly by the persons who have charge of them, and other pulmonary complaints are also usually due to some breach of a natural law.

The Pneumatic Tire for Doctors' Carriages.—Of the comfort of the rubber tire as applied to an ordinary carriage there can be no doubt, and the chief question therefore for those who are anxious to use them is as to whether they will wear. Of course, they require care in using and are somewhat expensive in the first instance, but against these items on the debit side must be set various points to their credit. We have recently received two very opposite accounts of the lasting powers of these tires, which we here lay before our readers. The first is the experience of a practitioner in Sheffield. He allows that, having procured a set of the tires in question, he found an enormous amount of increase of comfort from the absence of vibration and jolting, and in addition that the body of his carriage, a light coupé brougham, was saved a proportionate amount of wear. But, on the other hand, he found that they frequently burst, and although mended soon gave way again; that they threw up a quantity of mud, which injured the paint of the carriage; and that the brakes, though efficient, soon wore out. The other experience comes from a medical officer of health in a hilly part of Wales. He had the pneumatic tires fitted to an ambulance brougham, which in eight months traveled over 750 miles of hilly, rough ground without a puncture and with extreme comfort to the sick transported thereby. The brake blocks wear out in seven and a half months, but the tires themselves were but little worn by the brakes, although much cut by the roads. This latter seems a pretty severe test, and we are unable to account for the disastrous experiences of the Sheffield practitioner except by assuming that he got a faulty tire, for even with the greatest care anything manufactured sometimes fail, or else that the tires were not properly inflated before use and so got nipped between the road and the wheel. The increase of comfort is so great that though it may not be worth while for a medical man to run the risk of having his carriage laid up for long spaces of time, as happened to one who tried the tires, yet in the light of the Welsh experience they would seem to be quite worth a trial.—London *Lancet*, May 8.

Twelve Cases of Persistent Priapism.—Dr. Arthur H. Ward of the London Lock Hospital tabulates twelve cases of this affection, and reports another from his own practice that appears to have been a spontaneous thrombosis of the corpora cavernosa. His case, A. A., aged 32, unmarried, was seen at the end of five days of continuous erection, with much pain and no sleep. He was a small, "weedy," weary-looking individual. Family history negative. No venereal record. He had no illness or serious accident, had always been temperate and had never lived abroad or suffered from ague. Eight days before admission he had had intercourse, but had noticed nothing unusual afterward. Five days before admission he got up at midnight to pass urine, having been asleep for some hours. On returning to bed erection of the penis occurred. This condition remained through the night unchanged, with much pain referred to the body of the organ. He went to work the next day, but afterward remained in bed on his back with the knees drawn up. Any attempt to turn on his side was followed by greatly increased pain. There were no emissions or sexual desires. The penis was hyper-erected, being almost in contact with the median line of the abdomen. The erection was confined to the corpora cavernosa, the rounded ends of which could be clearly felt through the substance of the glans, which, together with the corpus spongiosum, was perfectly flaccid. The corpora cavernosa were of almost wooden hardness, and fluctuation could not be felt. Any attempt to depress the organ caused acute pain; the skin was normal and there was no localized swelling. The pulse and temperature were normal, the tongue was clean, and the urine was acid with no albumin. The heart and lungs were healthy. The left side of the abdomen was somewhat rigid and felt uniformly hard. The spleen was considerably enlarged, and its anterior margin could be felt near the umbilicus; no bruit or friction fremitus were present. The liver was apparently normal. There were large, soft, smooth glands in the groins, axillæ and sides of the neck; they were movable, painless and discrete; the skin over them was natural. There were no signs of local hemorrhage. The patient was not markedly anemic, and complained of no symptoms of that condition. On the third day there was little change. An inflammatory swelling was found over the corpus cavernosum near the crus, this subsided spontaneously. The penis became very gradually less painful and rigid, and about the seventh day fluctuation could be felt over the corpora cavernosa. The spleen increased in size and the notch could be felt at the umbilicus, while the lower border extended down to the crest of the ilium. On the tenth day the Clinical Research Association reported on the blood as follows: "Hemoglobin and red blood corpuscles 50 per cent. of normal. Proportion of white corpuscles to red 1 to 8. They are mostly of the large and not very sharply staining variety, but the eosinophile and granule cells are also increased. Poikilocytosis is not marked, but nucleated red blood corpuscles are occasionally met with. A few cells of doubtful nature, containing large splotches of material staining purple with methylene blue and eosin, are met with; these possibly are fragments of broken-down red blood corpuscles. The blood is typically leucocythemic and would point to the splenic variety of the disease." By the end of the fourth week the priapism was much less, and the penis fell forward when the man stood up. He felt better in all respects and slept well without drugs. His condition continued to improve, and by the end of the eighth week the penis was almost normal. One or two indurated masses remained in the crura. On the morning before leaving the hospital the patient had a normal painless erection, which soon subsided. Two months later there had been no return of the priapism, the spleen was very much smaller and the condition of the blood improved. The patient had gained weight and seemed to be fairly well. The arsenic treatment had been pursued. This case was no doubt one of spontaneous thrombosis of the corpora cavernosa consequent on the blood condition and established by an ordinary erection. The extraordinary hardness of the parts at first could only have been produced by the distension of the cavernous tissue with a passive clot. This large mass would naturally disintegrate in a few days and then afford a sense of fluctuation, but the thrombosis of the emissary veins persisting would prevent any escape into the circulation and at the same time keep up the condition of erection. He regarded the inflammatory swelling on the right side as probably surrounding a blocked emissary vein. The indurated masses which were felt in the crura at the end of the case were probably portions of the thrombus, which had organized more or less completely. The iodid treatment was adopted with a view of promoting the absorption of the clots, and this process was probably assisted by the local pressure, which at the same time gave the patient considerable ease by preventing the extreme tension which any displacement of the penis caused. Dr. Ward determined to avoid making any incisions if possible, although no doubt the disintegrated clots might have been squeezed out through them. But sepsis in this situation was only too likely to occur, and in the patient's general condition might have been disastrous. Nothing short of actual suppuration justifies incisions in such a case, since even if sepsis be avoided, adhesions between the trabeculæ must occur at the seat of the incisions and might cause distortion, while a septic condition would probably result in the entire loss of erectile power.—London *Lancet*, April 24.

The Diagnosis of Tuberculosis from the Morphology of the Blood.—In a paper on this subject, Dr. A. M. Holmes (*Med. and Surg. Reporter*, No. 2075, p. 757) concludes as follows: That the diagnosis of tuberculosis, from the morphologic appearance of the blood, rests upon the hypothesis that each individual has a biologic prototype in the leucocytes of his own blood. The leucocytes are independent organisms with functions analogous to those of the larger organism. That they pass through the stages of growth and decay. That disintegration of leucocytes may occur at any age. That the leucocytes are tissue-formers. That, as are the leucocytes, so is the individual. That tuberculosis is a disease characterized by tissue disintegration. That in tuberculous blood there is abundant cell disintegration, premature development, premature decay, and more or less deviation from the normal percentages of the various types of cells. That if there is marked disintegration in the leucocytes, it is with absolute certainty that we can predict a similar condition in the larger organism. That tuberculosis possesses a combination of blood appearances, from which a diagnosis may be made earlier than by any other means that we now possess. That these may be recognized under a high power. That they can be recognized even before the disease manifests itself in the individual. That they are sufficiently marked in tuberculous persons, or even in those with a strong tuberculous predisposition, to enable a diagnosis being made from the blood alone, without knowledge of the history or physical condition. That the real source of recuperative power is to be found in the leucocytes. That thus far no other pathologic condition has been found which presents similar appearances. That to secure an early diagnosis would enable many to avail themselves of favorable climatic changes, and thereby delay or even prevent the destructive results which would otherwise inevitably follow. And finally, that if future investigations confirm these deductions, we may look forward to a no distant day when, if we expect to detect tuberculosis in its incipiency, we must study the leucocytes.

PRACTICAL NOTES.

Improved Gynecologic Massage.—O. Beuttner recommends raising the pelvis in massaging the uterus and adnexa, as the organs thus become much more easily accessible to the operator, and the massage is much less fatiguing to the patient.—*Semaine Méd.*, May 26.

Local Injections of Antitoxin Serum in Diphtheria of the Eye.—H. Coppez communicates to the *Rev. Gen. D'Ophthamol.*, May 31, the results of a series of experiments on rabbits in this line, from which he concludes that local injections of antitoxic serum are useful. The effect of the serum is much more rapid. In severe monocular cases a subconjunctival injection of the serum in the sound eye seems to be the best means to preserve the sight on that side.

Treatment of Cavities with Mixed Iodoform and Calomel.—Sprengel announces that equal parts of iodoform and calomel form a harmless and powerful antiseptic dressing for the cavities left after operating for tuberculosis of the bones, joints, tracheotomies, etc. It promotes the formation of a thin eschar, thus preventing the sticking of the dressings to the tissues. After hemostasis is secured, the powder is sprinkled over the walls of the cavity with a small pointed spoon and rubbed in with a gauze pad held in the forceps. As much as 4½ grams can thus be applied without inconvenience. The wound is afterward kept open with a tampon.—*Cbl. f. Chir.*, February 6.

Edema of the Optic Disc.—Prof. A. Angelucci concludes from four personal observations and the results of others, that craniectomy in cases of edema of the optic disc produced by a tumor in the cerebrum or cerebellum, always improves the sight, but this improvement only continues and progresses when the operation was completed by the extirpation of the diseased focus. For the cases when this is impossible, he agrees with Broca, Mauriac and Chipault, who insist upon the palliative treatment of papillitis associated with symptoms of cerebral compression, as craniectomy in such cases relieves the pain, retards the post-neuritic atrophy and blindness and prolongs life.—*Revue Gén. D'Ophthalm.*, May 31.

Cancer of the Larynx.—Schmiegelow states that there are few parts of the body in which a cancer remains localized so long as in the larynx, and that few radical operations are as sure of success as its removal when diagnosed in time. He urges the necessity of careful investigation with the laryngoscope as frequently hoarseness is the only symptom of incipient cancer in this locality. His experience and observations of thirty-four cases are described in a comprehensive article in the *Nordiskt Md. Arkiv.* of May 8. He has never removed the entire larynx. One case, aged 62, on which he performed thyrotomy and the excision of the right vocal chord, has shown no relapse in the four years since. A relapse in a case, aged 72, required tracheotomy later. One died in the course of the seven operations he reports in detail.

Favorable Effect of Franklinization on the Voice.—It was announced at the meeting of the *Acad. de Sciences*, April 5, that the singing voice after a course of Franklinization, if the vocal organs are sound, becomes clearer, more flexible, with increased volume and agreeability of tone, and is less easily fatigued. It is therefore to be recommended to vocal pupils and *débutants*, as it imparts an exceptional beauty to the voice. The singer is seated on an insulated stool, connected with the negative pole of a high tension static machine, and an electric brush held before his face. The effect is perceptible even after one sitting.—*Semaine Méd.*, April 21.

Subcutaneous Injections of Salts of Iron.—Prof. R. Lepine reviews in the *Semaine Méd.* of May 26, the important works that have established the fact of the positive absorption of inorganic iron by the intestines, and refers to the cases in which iron is imperatively needed, but is not tolerated by the stomach. He has treated such cases with subcutaneous injections of citrate of iron (3 to 4 c.c. of a 4 per cent. solution, equivalent to 0.12 to 0.15 gram of citrate), and has found it remarkably successful. He describes one case of grave anemia of gastro-intestinal origin, in which the improvement was prompt and truly marvellous. He warns against administering iron in this way to patients with diseased kidneys or with tendency to hemorrhages, cirrhosis, hemorrhoids, metrorrhagia, etc.

Hemorrhage from Sound Kidneys.—There are eight cases on record in which the kidney was removed for hemorrhage and found absolutely normal. Klemperer ascribes it to paralysis of the vasoconstricting nerves, which he treats with complete repose, predominant but not absolute milk diet and suggestion. If several weeks of this fail to cure, combined with hydrotherapeutics and local electric treatment, and there is danger from excessive loss of blood, the kidney should be explored, but if found sound it need not be removed at that time, as the exploratory operation alone may bring relief.—*Deutsche Med. Woch.*, No. 8, 1897.

Acetonuria in the Mother Certain Evidence of Fetal Death.—It has been Knapp's experience that the urine of the mother tested with Legal's reagent, in cases of suspected death of the fetus, always showed a remarkable amount of acetone when the fetus was actually dead. The *Presse Méd.*, May 22, recommends Chautard's test as simpler and more accurate for the purpose. It is merely a 1 to 2000 solution of fuchsin (0.05 centigrams of fuchsin dissolved in 100 grams water) discolored with sulphurous acid. A few drops of this solution added to a test tube cottaining 15 to 20 c.c. urine turns the urine violet if there is acetone present.

Treatment of Varicose Ulcers Without Repose in Bed.—With Aubouin's method the patient resumes his occupation without incovenience or delay, and the dressings only need changing as the secretions find their way through the bandages. He first renders the limb antiseptic and dusts the ulcer with iodoform, xeroform of aristol or dermatol, smearing the adjoining eczematous region with Lassar's paste (pulv. starch and white zinc oxid each 20 grams, vaselin 40 grams). After this Unna's glue paste, melted, is applied over the whole limb. (Formula: Water and glycerin each 80 grams, gelatin and zinc oxid each 20 grams.) A starched tarletan bandage is applied outside of this with moderate compression and an outer bandage to prevent soiling, when the patient is dismissed to his usual occupation. The appearance of pus is the only indication for a change of dressings. They are easily removed after soaking in a warm foot bath.—*Presse Méd.*, May 19.

Occlusive Dressing with Airol Paste.—P. Bruns of Tübingen recommends his airol paste in the highest terms as an ideal dressing for sutured wounds. It dries rapidly and sticks closely, it is powerfully antiseptic and absolutely unirritating to the most sensitive skin, but its chief advantage is that it allows the secretions to ooze through it. He has been using it for six months, especially after laparotomies, herniotomies and ignipunctures, and has not had a single stitch-hole suppuration with it. He concludes with the statement that occlusion with airol paste insures in the simplest manner a flawless *prima intentio*. His formula is: Airol, mucil. gummi arab., glycerin, āā, 10 parts; bolus albus, 20 parts. He uses it even in wounds with drainage.—*Beiträg. z. Klin. Chir.*, xviii, No. 2.

Strontium Lacticum in Bright's Disease.—Bronowski has confirmed Laborde's assertion that this substance has no toxic effect, even administered for a long period. After experimenting with animals, he administered it to thirteen cases of Bright's disease. Death from other complications followed in two cases, and one case was not affected by it either way, but the remaining ten were all either entirely cured or remarkably improved. His doses were 1.0 *pro dosi* and 6.0 *pro die*, in an aqueous solution. The strong diuretic effect was felt by the second day, especially in acute parenchymatous nephritis. The effect is much less powerful in the chronic forms. He adds that morphin diminishes the effect of the strontium, and ascribes its diuretic effect to stimulus of the N. splanchnicus, which dilates the renal vessels.—*St. Petersb. Med. Woch.*, May 22.

Formaldehyde and its derivatives, Holzin and Steriform.—Rosenberg states that he has become convinced from recent investigations and experiments that formaldehyde is the most powerful bactericide we possess, and that it is by no means as toxic as generally supposed, which he proved by taking gradually increasing doses himself, for six weeks, without the slightest trace of harm. Nothing abnormal was discovered in the blood or urine at any time, although bacteriologic tests of the urine showed that it had been rendered absolutely sterile. Lessin's new test for formaldehyde detects it even in a 1 to 10 million dilution, and with this test free aldehyde was found in the urine after taking the formaldehyde, and even after remaining in a room they had been disinfected with it, which disproves the assumption that it can not pass into the blood without being resolved into formic acid. He also administered it to animals and to patients with tuberculosis, erysipelas, etc. (In tuberculosis having the patients inhale holzin, a preparation of 50 per cent. menthol, 3.5 per cent. formaldehyde and methyl alcohol.) He prefers the two derivatives, holzin a liquid, and steriform a solid, and an entirely new chemical substance, prepared with lactose, but differing from it in important particulars. (Formula: 5 per cent. formaldehyde, 10 per cent. sal ammoniac, 20 per cent. pepsin and the rest lactose.) Holzin is especially effective in disinfecting surgical instruments. He mentions an instance in which he operated a tumor of the sheath of a tendon with the same instrument, unwiped and uncleaned, with which he had operated an extensive suppurating phlegmon an hour before, merely leaving the instrument in holzin during the interval.—*Therap. Woch.*, April 25.

Tuberculous Cystitis.—In treating this subject from an experience of 116 cases, Prof. Guyon emphasizes first of all the immense importance of general therapeutics, which applies to all forms of cystitis. There is not the danger of irritating the bladder in tuberculous cystitis that there is in other forms, hence the diet should be abundant and extremely nourishing. Creosote ranks first in the medicines. He has also found cod liver oil useful. Local treatment must be very cautiously applied as the bladder is exceedingly sensitive. It should be examined as little as possible and irrigation avoided. But the local treatment is extremely important and should be commenced from the first, confining it to very weak solutions. He found boric acid, etc., injurious in any form, and restricts himself to sublimate and guaiacol. The sublimate is more effective; it is beneficial even in very weak solutions and in merely suspected cases. Four out of 33 patients treated with it, were completely cured; five much improved and eight moderately. He begins with a 1 to 5000 solution, raising this to 1 to 3000, and reducing the strength at the slightest evidence of irritation. It must always be borne in mind that the bladder can not stand even the weakest solution in any form but gradual instillations 30 to 40 drops are enough; 50 the maximum. The general treatment should be continued months, even if all the symptoms have long ceased. The surgical treatment was high cystotomy in sixteen cases; one recovery; two improvements; seven deaths and six negative results. Better results were attained with perineal drainage. With this in seven operations five were very much improved, one died and one was not affected. Nine women curetted *per urethram* were all very much benefited with one exception.—*Bulletin Méd.*, No. 4.

Camphoric Acid in the Treatment of Night Sweats.—Dr. H. A. Hare in the *Therapeutic Gazette*, March, reports that in the January issue of the Edinburgh *Medical Journal* Dr. Ralph Stockman has contributed a paper in which he notes the value of camphoric acid in the treatment of night sweats, and quoted considerably from foreign literature on this subject in support of his own clinical experience. Dr. Hare has on several occasions in papers which have been published, and every year to his class of medical studants, emphasized the value of this remedy as an antisudorific. His first experience with it was in the wards of St. Agnes' Hospital during 1890–91, where he found, as Dr. Stockman has, that it controlled the sweats of tuberculosis in the great majority of cases and did not produce any disagreeable symptoms whatever, such as are usually caused by atropin and other powerful antisudorifics. He has pointed out that twenty grains was usually quite sufficient to control the sweat, provided it was given early enough to be absorbed before the time the sweat was reached; and he also pointed out, what other continental observers had previously noted, that as much as sixty grains of this drug may be given without deleterious effect. A continued large employment of camphoric acid in the six years that have succeeded this report has still further confirmed his high opinion of this remedy. Like every other remedy, it will fail in some cases, but no remedy has been met with which in his hands so universally succeeds. It may be given in cachet, dissolved in whisky or brandy, or placed in dry powder on the tongue and washed down with a little water or milk; but as it is slowly absorbed it should be given an hour or two before the time at which the sweat usually comes on. The writer has also found camphoric acid of great value in the treatment of idiopathic ptyalism as it is sometimes met with in young children, as it controls the salivation without disordering the digestion.

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SATURDAY, JULY 3, 1897.

LIFE INSURANCE FEES FOR MEDICAL TOUTS.

For at least half a century the American medical profession has been conscious of the great injustice done it in the matter of fees for life insurance examnations. Of late this feeling has been intensified by the wanton reduction of fees to medical examiners, while at the same time the salaries of presidents were increased by thousands. While life insurance companies do not appreciate physicians highly in their proper functions as medical men they seem to understand their commercial value as advisers of families, to judge from the following offer to a local member of the medical profession, from one of the larger New York life insurance companies:

Knowing that among your large acquaintance more than two-thirds are thorough believers in life insurance, and a person anticipating placing insurance, will listen to the advice of his physician, a large amount can often be earned in this way, without inconvenience or taking your time from your regular line of work. If the following proposition is received favorably kindly notify me by mail and I will place your name on our records both here and in New York as a representative of this Society, which is the largest and strongest financial institution of this kind in the world, pays its death claims more promptly, gives better results on maturing policies and more liberal contracts than any other company in existence. On business I may secure through letters, personal introductions or names furnished by you, I will pay you 25 per cent. of the first year's premium. Business that comes direct from you without solicitation by myself or agent I will pay a commission of 50 per cent. of the first year's premium. Will furnish illustrations of the results of policies at any age, per your request on any plan you may suggest. If you keep this proposition in mind, and take advantage of it whenever the opportunity presents itself you will find that at the end of the year your profits from this source will have been very satisfactory.

This is an innovation introduced from that "right little, tight little, island" whose ideal medical men, so free from commercialism, will, the *Medical Press* greatly fears, be contaminated by chance contact with Yankee-dollar-adoring medical ὁι πολλοι at the coming meeting at Montreal of the British Medical Association. This commission dodge has long been adopted in Britain by the shady life insurance companies satirized by Dickens in "Martin Chuzzlewit," whose lash the medical tout of those days did not escape, as witness the picture of the "Anglo-Bengalee" dinner;

The lunch was handsomely served with a profusion of rich glass plate and china, which seemed to denote that eating and drinking on a showy scale formed no unimportant item in the business of the Anglo-Bengalee Directorship. As it progressed the Medical Officer grew more and more joyous and red faced insomuch that every mouthful he ate and every drop of wine he swallowed seemed to impart new lustre to his eyes and to light up new sparks in his nose and forehead.

In certain quarters of the city and its neighborhood Mr. Jobling was a very popular character. He had a portentiously sagacious chin and a pompous voice, with a rich huskiness in some of its tones that went directly to the heart like a ray of light shining through the ruddy medium of choice old burgundy. His neckerchief and shirt-frill were ever of the whitest, his clothes of the blackest and slickest, his gold watchchain of the heaviest and his seals of the largest. His boots, which were always of the brightest, creaked as he walked. Perhaps he could shake his head, rub his hands or warm himself before a fire better than any man alive and he had a peculiar way of smacking his lips and saying "Ah," at intervals while patients detailed their symptoms, which inspired great confidence. It seemed to express: "I know what you're going to say better than you do; but go on, go on." As he talked on all occasions whether he had anything to say or not it was unanimously observed of him that he was full of anecdote and his experience and profit from it were considered for the same reason to be something much too extensive for description. His female patients could never praise him too highly and the coldest of his male admirers would always say this for him to their friends, that whatever Jobling's professional skill might be, and he had a high reputation, he was one of the most comfortable fellows you ever saw in your life.

Jobling was for many reasons not last in the list, because his connection lay principally among tradesmen and their families, exactly the sort of person whom the Anglo-Bengalee Company wanted for a medical officer. But Jobling was far too knowing to connect himself with the company in any closer ties than as a paid (and well paid) functionary or to allow his connection to be misunderstood abroad if he could help it. Hence he always stated the case to an inquiring patient after this manner.

"Why my dear sir, with regard to the Anglo-Bengalee my information you see is limited, very limited. I am the medical officer in consideration of a certain monthly payment. The laborer is worthy of his hire; bis dat qui cito dat (classical scholar Jobling, thinks the patient, well read man) and I receive regularly. Therefore I am bound so far as my own knowledge goes to speak well of the establishment. (Nothing can be fairer than Jobling's conduct, thinks the patient who has just paid Jobling's bill himself). If you put any question to me my dear friend," says the Doctor, "touching the responsibility or capital of the company there I am at fault for I have no head for figures, and not being a shareholder am delicate of showing any curiosity whatever on the subject. Delicacy, your amiable lady will agree with me I am sure, should be one of the first characters of a medical man. (Nothing can be finer or more gentlemanly than Jobling's feelings thinks the patient). Very good my dear sir; so the matter stands. You don't know Mr. Montague. I am sorry for it. A remarkably handsome man and quite the gentleman in every respect. Property I am told in India House and everything belonging to him beautiful. Costly furniture on the most elegant and lavish scale. And pictures which even from an anatomical point of view are perfection. In case you should think of doing anything with the company I'll pass you, you may depend upon it. I can conscientiously report upon you as a healthy subject. If I understand any man's constitution it is yours. And this little indisposition has done him more good maam," says the Doctor, turning to his patient's wife," than if he had swallowed the contents of half the nonsen-

sical bottle in my surgery. For to tell the honest truth one-half of them are nonsense compared with such a constitution as his." (Jobling is the most friendly creature I ever met with in my life, thinks the patient, and upon my word and honor I will consider it.)

"Commission to you, Doctor, on four new policies and a loan this morning, eh?" said Crimple, looking, when they had finished lunch, over some papers brought in by the reporter. "Well done!"

"Jobling, my dear friend," said Tigg, "long life to you."

"No, no; nonsense. Upon my word, I have no right to draw the commission," said the Doctor; "I haven't, really. It's picking your pocket. I don't recommend anybody here. I only say what I know. My patients ask me what I know and I tell 'em what I know; nothing else. Caution is my weak side, that's the truth, and always was from a boy. That is," said the Doctor, filling his glass, "caution in behalf of other people. Whether I would repose confidence in his company myself, if I had not been paying money elsewhere for many years, that's quite another question."

"The Anglo-Bengalee" swindled its policy-holders. The life insurance company, which pays its medical touts large commissions while refusing its medical examiners proper compensation, is, on the most ordinary business principles, in imminent danger of sharing a like fate. To secure proper risks rather than great increase in business is *the* duty of a life insurance company. Payment of commissions to medical touts rather than proper fees to medical examiners may conduce to the benefit of the agent or of the president, but it certainly does not to the best interest of the policy-holders. Moreover, it is a procedure calling for examination by the State into the financial condition of the companies practicing.

THE TRANSMISSION OF LEPROSY.

The transmission of leprosy is a question that has long been an open one and in late years, notwithstanding the discovery of its germ in HANSEN'S bacillus, there has been more or less conflict of opinion as to the dangers of contact and infection and also as to its possible hereditary transmission. As to its contagiousness there is at present little doubt; the experience of countries where it has been introduced is evidence enough of this fact; under favorable conditions, as yet imperfectly known, it must be almost malignantly contagious. A couple of Chinese lepers introduced into the Sandwich Islands less than forty years ago have infected at the present day twelve per cent. of the native population; a brief visit to the tropics has been known to be followed by leprosy without any actual consciousness of exposure, and other still more striking examples are on record. On the other hand, there are some who consider its contagiousness as slight, and believe that as a public danger its importance has been unduly magnified. The government commission in India not long since took this view, and considered the isolation of lepers, other than vagrants, unnecessary.

It is not essential that we should adopt the view advanced a few years back, that there is at the present time a general increase or spread of this affection, a "recrudescence of leprosy," that bids fair to reproduce the conditions of the middle ages in Europe and transmit them also to America. Our faith in medical science ought not to fail us to the extent of our believing that such conditions could be reproduced at the present time. It may be that we have only had our eyes opened to the prevalence of a disorder that unrecognized has existed among us all this time, but which in our climatic and other conditions is hardly a serious public danger, though formidable enough to its occasional victims. Nevertheless, with its capricious contagion, its repulsive character and its practical incurability, it is serious enough for us to use all means to prevent its spread where it exists, and to welcome any new additions to our knowledge that may be available for this purpose.

One of the most recent contributions to this subject is that of Dr. KARL WEBER of Halle in the latest issue of the *Deutsches Archiv für klinische Medicin*, in which he gives the result of a search by the various histologic methods, of which he gives the preference to the carbol fuchsin stain of ZIEHL-NIELSEN, for the lepra bacillus in the different tissues and fluids of the body, with a special object of ascertaining what are the readiest ways by which it can be transmitted. His results were negative as regarded the blood from healthy tissues, the saliva and the urine, but the lepra bacilli were found more or less abundantly in the blood and lymph from the diseased parts, in the dermal scales, the lanugo hairs, the perspiration and the spermatic fluid. They were especially abundant in the skin in all its layers, and it seems clear, accepting his findings and conclusions, that there is no limit to the possibility of the dissemination of these germs. The question remains, Are they in a living condition and capable of producing leprosy? It would appear from the uncertainty of the contagion as well as from culture and inoculation experiments that the vitality or at least the activity of these organisms must be at a low ebb for most of the time or that unfavorable external conditions or excessive resistance of healthy tissue limit their pathologic propagation. Otherwise we could hardly limit the extension of the disease and it is this remarkable saving fact, for such it seems to be, that prevents us from becoming a world of lepers. As Dr. WEBER says: "It is indeed remarkable that considering the tremendous number of these bacilli, the danger of infection is relatively slight, and we can base this fact, lacking positive proof, only provisionally on the assumption that the bacilli are either already dead in the skin, or that if still alive, they pass through many alterations after being thrown off, that cause their death. It is also supposable, that special conditions are requisite for infection to be possible." The thought that a leper is constantly throwing off innumerable HANSEN'S bacilli from the surface of his body, wherever he may be, is an unpleasant one at best, and if it were supposable that they all or any considerable proportion of them possessed their full virulence and activity it would be unendurable. The

facts, however, that the contagion of leprosy seems to be very slight in temperate climates, and even in the tropics, as in Hawaii, it is confined almost entirely to the native and Asiatic races and the whites generally escape, that it is sometimes not even communicated between husband and wife or parents and children, notwithstanding the intimate relation in which they live, indicate that some special conditions that do not generally exist are requisite for its transmission. On the other hand the very slight exposure that sometimes appears to be sufficient for its contagion and its uncertain and lengthy periods of incubation leave an unpleasant uncertainty in regard to any and every exposure. There will be many important practical questions for the consideration of the Conference on Leprosy that is to meet in Berlin next October, and its conclusions will be awaited with interest.

There are of course other questions that are of scientific interest, such as the relations of MORVAN'S disease and syringomyelia and other affections to leprosy, but the really practical ones are those that bear upon its contagiousness and its transmission. It will be a satisfaction if enough can be added to our knowledge of the disorder to remove some of the uncertainty that at present exists.

THE LATEST THEORY OF SLEEP.

In the *Journal of Experimental Medicine* for May, there appears an experimental investigation upon the physiology of sleep, by W. H. HOWELLS of Johns Hopkins University. His experiments were made to ascertain the variations in the volume of the arm during sleep by means of a plethysmograph, and the results indicated a vasomotor dilatation in the arm, which the experimenter attributes to a relaxation of tone in the vascular apparatus of the skin, a diminished peripheral resistance in the skin area and a corresponding lower arterial pressure and blood supply to the brain. This interpretation of his results leads the author to adopt a theory of sleep which he thinks is new in some of its features, and which he states as follows: "The immediate cause of normal sleep lies in a vascular dilatation (of the skin) that causes a fall of blood pressure in the arteries at the base of the brain and thereby produces an anemic condition in the cortex cerebri. This condition of anemia, in connection with the withdrawal of external stimuli, causes a depression of the psychic processes in the brain cells below the threshold of consciousness." The fall of blood pressure, he goes on to say, is due to a relaxation of tone in the vasomotor centers, and normal awakening is due to a resumption of vasomotor tone, and this involves an incessant activity of this center during waking from stimuli of all kinds, resulting finally in its fatigue with renewed relaxation and consequent sleep. This is the rhythmic cycle—a loss and a resumption of tone in the vasomotor center.

If the fatigue is not extreme, sleep can only be induced by the withdrawal of stimuli and this is an ordinary condition in the production of normal slumber. It may be that a certain degree of fatigue of the higher centers has also its action, and these factors may be said to enter into the production of normal sleep. 1. "A diminution of irritability, caused by fatigue, of large portions of the cortical area. 2. Voluntary withdrawal of sensory and mental stimuli involved in the preparations for sleep. 3. A diminished blood supply to the brain, owing to a relaxation of tone in the vasomotor center and the fall of general arterial pressure thereby produced. This last is the immediate cause of sleep and must always precede it; the first is comparatively unessential, as was shown by STRUEMPELL'S well-known case where cutting off the remaining sensory avenues to consciousness produced sleep at any time.

In favor of his view HOWELLS finds that awakening is accompanied by an immediate decrease of peripheral vascular tonus as shown by his plethysmographic tracings, which also showed the same corresponding with the increase of intensity of the slumber, though later there was a variance which he explains on the assumption that the cells of the cortex regain their activity sooner than do those of the vasomotor center, the slow recovery of the latter from fatigue thus insuring the needed rest for the organism as a whole, which would not be gained were the cortical cells chiefly involved.

While he claims this theory as new, at least in part, he admits that a somewhat similar one was once held by Mosso, and later rejected, and also by HEGER as quoted by DE BOECK and VERHOEGEN. HILL also has recently proposed the idea that sleep is due to cerebral anemia caused by relaxation of the vasomotor centers for the splanchnic area. He does not refer to the notion that sleep is due to cerebral anemia caused by loss of inhibition over the vasomotor centers by fatigue of the cortical cells, advanced by DURHAM and others, which, as a very similar vasomotor and cerebral anemia theory, might well have been noticed in this connection. The ideas of HOWELLS do not, moreover, exclude any such theories as those of RAMON Y CAJAL and DUVAL, inasmuch as they do not attempt to explain the ultimate cell changes in the nervous centers. With the little we have learned of the effects of fatigue upon nerve elements, there seems to be a wide range of possibilities in this direction. The possibility moreover of a special sleep-regulating center has been suggested and is still an open question.

The theory of HOWELLS contains really only one novel feature, if it be novel, namely, the notion of a vasomotor relaxation in the skin correlated with anemia of the brain. The relations of the two to each other as cause and effect are not demonstrated, and in this respect it is not a very important addition

to previous theories. As an experimental contribution, however, to the physiology of sleep the paper has its value.

THE DIAGNOSTIC SIGNIFICANCE OF HEMOPTYSIS.

It is by no means always easy to determine at once the source of hemorrhage when blood is ejected from the mouth. It is true that certain peculiarities of appearance serve to distinguish the blood as it comes either from the respiratory or the digestive passages. Thus blood from the lungs is likely to be frothy and florid in hue, while that from the stomach is usually dark and clotted from the action of the gastric juice. In the one instance the hemorrhage attends or follows cough; in the other it is associated with vomiting or regurgitation. It must, however, be borne in mind that blood from the lungs may enter the stomach and be rejected by vomiting, while blood from the stomach may be inspired into the larynx and trachea and be expelled by cough.

Even when in a given case it is recognized that the bleeding has its origin in the air-passages it may be difficult to decide its precise source. In the majority of cases no doubt such hemoptysis results from disease of the lungs, usually tuberculous in nature, but in a considerable number the responsible lesion is situated in some other portion of the respiratory apparatus. It must be obvious that the discrimination means a vast difference in prognosis and in treatment. To this aspect of the subject interesting consideration is given by Dr. DAVID NEWMAN in a recent communication published in the *British Medical Journal*, May 29, 1897, p. 1900.

In the course of this paper it is pointed out that the tissues of the upper air-passages have a very free vascular supply and are constantly exposed to injury, so that blood vessels already weakened by disease are exceedingly liable to rupture. Clinical experience has shown that hemorrhage not rarely occurs from very trivial lesions of the pharynx and the larynx, being often attributed to tuberculous disease of the lungs, even in the absence of discoverable physical signs. Under such circumstances the laryngoscope will in many cases disclose the real source of the bleeding.

It is to be remembered in this connection that blood may come from the gums or the mucous membrane of the mouth as a result of either local or constitutional morbid states. Among the latter may be enumerated hemophilia, purpura, scurvy and anemia. Apart from changes in the blood and blood vessels hemorrhage into the larynx or pharynx may result from acute inflammation, ulceration, varicose veins or aneurysms and vascular tumors. The most common local cause of hemorrhage from the upper air-passages is a dilatation of the veins in the pharynx or larynx. From this source the bleeding is generally slight, although it may be persistent. Tumors composed of blood vessels are seldom met with in the nasal mucous membrane and very rarely give rise to hemorrhage of the kind under consideration.

In all cases of hemoptysis the important point is to discover the source of bleeding. The mode of escape of the blood and the impressions of the patient can not be relied upon for diagnostic purposes in a doubtful case, so that the use of the laryngoscope or of the rhinoscope becomes often absolutely necessary. The presence of blood in the trachea is not always a certain indication that the extravasation came from the lungs; it may have come from the upper air-passages or even from the esophagus or the stomach. In the absence of evidence of a lesion of the parts last named the bleeding may be safely attributed to pulmonary disease, even though there be no demonstrable physical signs; and on this assumption treatment should be adopted until unmistakable symptoms or physical signs render the diagnosis certain. Under rare circumstances the possibility of malingering or deception will have to be considered and proper allowance made.

THE LATE MEETING OF THE OPHTHALMIC SECTION OF THE AMERICAN MEDICAL ASSOCIATION.

This was of National importance; its members included physicians from every portion of the United States; in reputation for competent work and honorable conduct they were of the best; for unceasing devotion to the interest of the Section they could not have been excelled; in short, it was a representative body of working American ophthalmologists.

Its officers, led by the Chairman, Dr. GEO. E. DE SCHWEINITZ, presented a program of exceptional interest; including seventy papers, with discussions opened by persons selected for their familiarity with each topic. This gave the Section a careful study not only by the author of the paper but by one or more other member, all speaking directly to the same point. Ten minutes only was allowed to each paper and five to each person discussing the same, and no person could speak twice. As the Chairman impartially enforced these rules, the meeting moved forward with the regularity of clockwork, making tediousness impossible.

Over six-sevenths of the papers were completed in the time appointed for Section work without curtailing reasonable discussion.

Of the important subjects discussed, were ROENTGEN rays in ophthalmic surgery, with experimental researches for locating foreign bodies within the eye. Drs. H. F. HANSELL and WM. M. SWEET, presented this matter in such a way as to interest and instruct, by giving not only their own personal work, but that of others.

The discussion upon the implantation of a glass ball as a support of an artificial eye, showed that this procedure was gaining in popularity.

Dr. ROBERT RANDOLPH'S paper on the Bacteriology of the Conjunctiva, with its discussion by Dr. HAROLD GIFFORD, placed before the Section scientific researches of a practical nature. It was shown that all the bacteria could not be removed from the conjunctiva by any means that would not destroy the same, though masses of the bacteria could be safely removed. Working details for the practical ophthalmologist were given.

Dr. E. A. DE SCHWEINITZ'S paper upon the Best Methods of Sterilizing Ophthalmic Instruments was another contribution of original investigation valuable to all who use surgical instruments.

It suffices to mention the fact that Dr. H. KNAPP reported a study of one thousand cataract operations with comments, as all having to do with such cases will read it with profit. His discussion of many other topics greatly enriched the proceedings. Other phases of cataract operations were treated by papers as the after-treatment of cataract cases with especial reference to the use of germicides by Dr. J. A. WHITE of Richmond; The Best Methods of Preparing Dressings for Cataract Cases, by Dr. C. A. WOOD, etc.

Glaucoma was discussed in different aspects by Dr. D. S. REYNOLDS and Dr. S. D. RISLEY.

An interesting group of papers treated of special tumors of the orbit, and abscesses of the same locality.

Trachoma was considered in a series of carefully prepared papers; its surgical management; its medical treatment; the value of jequirity; the treatment of complications; the hygiene of trachoma; ten years with the surgical treatment of trachoma and the relative infrequence of trachoma in Southern California. Each participant in this series was especially qualified therefore by extensive experience that the total result was of high scientific and practical value. Alone these papers will be worth many times the cost of the Transactions of this Section.

Space fails to farther specify the exceptionally good work done by this Section.

It is permitted to say that the reason for this scientific excellence lies in the fact that its members work for the good of the entire Section equally with their own. There is not and has not been for years any wire pulling for official position. Provision is made by the rules for the selection of those who can best serve the Section and these are elected as its servants.

Reference to its social features must not be omitted as these are helpful to its development. All who have attended its social reunions feel that they are in the midst of a band of brothers working for the common good, and the advancement of their art. Old acquaintances are renewed and new ones formed, by those who have known each other by their published work. Altogether the Ophthalmic Section of the AMERICAN MEDICAL ASSOCIATION is a model medical society. Other Sections are working toward the same end along similar lines; even the ASSOCIATION itself is tending thither. When these have become altogether like the Ophthalmic Section, membership therein will be prized most highly, and inability of members to attend the annual meetings will be regarded as a serious personal loss, loss of professional attainment and of professional fellowship.

The Chairman for the coming year is Dr. HAROLD GIFFORD of Omaha, Neb., the Secretary Dr. ROBERT RANDOLPH of Baltimore, Executive Committee Dr. EDWARD JACKSON of Philadelphia, Dr. L. HOWE of Buffalo, N. Y. and Dr. G. E. DE SCHWEINITZ of Philadelphia. The work of the Section republished from the JOURNAL with list of members, etc., can be secured from the secretary or from the JOURNAL office for one dollar.

CORRESPONDENCE.

Section Work at the Meetings of the American Medical Association.

PHILADELPHIA, PA., June 21, 1897.

To the Editor:—Your discussion of "*The Ideals of the Profession*" is a most moderate and timely one. It is, *unfortunately*, based upon the idea that the members of our profession invariably improve, as they grow older, showing by the end of the tenth year a well rounded perfection in science, arts and ethics.

If this were so, the suggestion to keep the younger men back till they had been in practice ten years, would be most valuable. *Unfortunately*, in some of us at least, time emphasizes our faults as well as our virtues, and there are no more blatant advertisers, none more ready to rush into print, in either the medical or the lay press, none more eager to be the first to report "something new" based mayhap upon a single case, than some of the so-called leaders of the profession who have been in practice for ten years or even a longer period.

Many a "modest youth" has blossomed into the obtrusive advertiser of older years.

Further, in these days of "*systems*" it is sometimes doubtful whether we are *always* getting original work from the busy "ten year olds." A dozen young men to make compilations from the journals and libraries, a shorthand, typewriting medical amanuensis "to lick" the copy into shape, and there is not much else left for the ten year graduate to do, but to affix his signature and perhaps read the paper, which he can also do by proxy.

As regards the regulation of the Section work, much can be done by a judiciously energetic chairman.

In this great and glorious republic of letters, everybody is at liberty to leave the room when the paper by a graduate of less than ten years is being read, while those older graduates (and perhaps some younger ones) who place their names and titles upon the Section program for advertising purposes only, can be cut off, by requiring that the chairman and secretary of the Section shall be imperatively obligated to exclude from the reading, and from the columns of the JOURNAL, all those who have not placed in the hands of the secretary of that Section upon the day of the registration of the meeting of the ASSOCIATION for that year, a copy of the paper to be read as a guarantee of good faith. The provision of a month in advance as it

now stands, is inoperative, because from the exigencies of a physician's work it has been found impracticable.

Yours truly, E. W. HOLMES, M.D.

The Vile Osteopathy Bill..

OMAHA, NEB., June 25, 1897.

To the Editor:—I am glad to see you publish the names of the senators who supported the vile osteopathy bill in your legislature. Now, if every doctor in Illinois (my native State) will cut the list out and paste it in his hat, and then fill his political pocket full of stones for the benefit of these creatures when they raise their heads above the grass, something practical will be accomplished. This form of "argument" is the only one that really reaches the vitals of the average politician. In the Nebraska legislature last winter our bill for an examining board was defeated, largely owing to the opposition of an Omaha senator, who was, immediately after, the nominee of his party for mayor of this city. At least fifty physicians at once organized in opposition to the gentleman and, in a close election, we had the satisfaction of seeing him defeated by 200 votes. We actually found that doctors have a good many friends who are willing to favor them if they will simply get out and ask for what they want, just as other fellows do. The trouble in the past has been too much modesty and too little uniformity of action. Our fight for an improvement in our medical law is all that kept osteopathy in the background in Nebraska. A bill was prepared and ready to introduce, but there were too many doctors on deck all winter to allow any crooked work. All honor to your governor and to those of South Dakota and Colorado for their sensible stand on this vicious bill. It seems to me that the doctors in those States should remember them most kindly for all time to come.

Respectfully yours, B. G. CRUMMER, M.D.

ASSOCIATION NEWS.

Recommendation of Section on Neurology. Report of Committee on President's Address.—Your Committee, to whom was referred the address of the Chairman of the Section, beg leave to report as follows: That they believe it expedient that the work of this Section should be divided and that the part dealing with Medical Jurisprudence should be included in the work of the Section on State Medicine or that a separate Section should be instituted to deal with the subjects included under the term Forensic Medicine. They, however, deem it inexpedient to take any action at this time regarding such a division.

They strongly recommend for adoption, the recommendation of the Chairman that the office of the Secretary of the Section so far as possible be made permanent. This can not be done under the By-laws of the ASSOCIATION, but the same result can be reached, if those who regularly attend the meeting of the Section reach a tacit understanding that the secretary is to be re-elected each succeeding year. This, we think, is the most important step to take to secure continuity in our work on some sort of stable membership for the Section. We feel that unless a certain number of men throughout the country interested in neurological science, are interested from year to year in the work of the Section, the largest measure of success can not be achieved.

We would further recommend that a small voluntary assessment be made annually upon the members attending the Section, which shall be devoted to postage and other incidental expenses of the secretary, while the transportation of the secretary to and fro from the place of meeting be paid from this fund.

We recommend for adoption the following:

Resolved, That the Section on Neurology and Medical Jurisprudence endorse the neural terms adopted by the American Neurological Association, the Association of American Anatomists, and the American Association for the Advancement of Science, and so far as practical recommend their use in the work of the Section.

All of which is submitted, C. K. MILLS,
C. H. HUGHES,
Philadelphia, June 2, 1897. HAROLD N. MOYER.

Rush Monument Fund.—At the recent annual meeting of the American Medico-Psychological Association, the undersigned were appointed a committee to coöperate with a similar committee of the AMERICAN MEDICAL ASSOCIATION, to urge the completion of the project to erect a memorial at Washington to Dr. Benjamin Rush. Since then the semi-centennial jubilee of the latter body has been held at Philadelphia, and a feature of the occasion was the enthusiastic resolve to raise a fund of $100,000 for the erection of such a monument as shall be creditable to its illustrious subject and to the great profession of which he was so distinguished a member. This action makes it all the more incumbent upon the American Medico-Psychological Association to contribute its full share to the accomplishment of this commendable National undertaking. Dr. Rush's prominence as an alienist whose views were far ahead of his time, and whose work on insanity was a standard authority in Europe, as well as America, for more than half a century after his death, makes it particularly our duty to honor his memory—first as one of ourselves and as a master in our special line of inquiry; and, further, because of his eminence as a teacher, writer and general practitioner and renowned Revolutionary patriot.

Your committee, therefore, most earnestly solicits your prompt subscription to the fund which, it is hoped, you will make commensurate with this Association's estimate of this great physician and psychologist.

Contributions may be made to any member of the Committee.

George H. Rohé, Sykesville, Md.; J. T. Searcy, Tuscaloosa, Ala.; John Curwen, Warren, Pa.; Benj. Blackford, Staunton, Va.; T. J. W. Burgess, Montreal, Can.; A. B. Richardson, Columbus, Ohio; Wm. M. Edwards, Kalamazoo, Mich.; H. A. Gilman, Mt. Pleasant, Ia.; Chas. P. Bancroft, Concord, N. H.; P. M. Wise, Albany, N. Y.

Colorado's Contribution to the Rush Monument Fund.—Colorado has already fulfilled the pledge for a $2,000 contribution to the Rush Monument Fund, made by Dr. Graham at the meeting of the AMERICAN MEDICAL ASSOCIATION at Philadelphia. At the meeting of the State Medical Society, June 15, the full sum pledged by Dr. Graham was immediately raised by individual subscriptions offered most generously and with great enthusiasm.

Competition for the Senn Medal.—Pursuant to a resolution adopted by the Section of Surgery and Anatomy of the AMERICAN MEDICAL ASSOCIATION, June 4, 1897, I have been appointed by the Chairman, Dr. Reginald H. Sayre, as Chairman of the Committee charged with the awarding of the Senn Medal for 1898. The other members of the Committee are Drs. H. O. Walker of Detroit, Mich., and S. H. Weeks of Portland, Me.

1. A gold medal of suitable design is to be conferred upon the member of the AMERICAN MEDICAL ASSOCIATION who shall present the best essay upon some surgical subject.

2. This medal will be known as the Nicholas Senn Prize Medal.

3. The award shall be made under the following conditions: *a.* The name of the author of each competing essay shall be enclosed in a sealed envelope bearing a suitable motto or device, the essay itself bearing the same motto or device. The title of the successful essay and the motto or device to be read at the meeting at which the award is made, and the corresponding envelope to be then and there opened and the name of the successful author announced. *b.* All successful essays become the property of the ASSOCIATION. *c.* The medal shall be conferred and honorable mention made of the two other essays considered worthy of this distinction, at a general meeting of the ASSOCIATION. *d.* The competition is to be confined to those who at the time of entering the competition, as well as at

the time of conferring the medal, shall be members of the AMERICAN MEDICAL ASSOCIATION. *e.* The competition for the medal will be closed three months before the next annual meeting of the AMERICAN MEDICAL ASSOCIATION, and no essays will be received after March 1, 1898.

Competitors will address their essays to the undersigned.

J. MCFADDEN GASTON, M.D., Chairman.

1½ Edgewood Ave., Atlanta, Ga.

SOCIETY NEWS.

Connecticut Medical Association.—The one hundred and fifth annual meeting of the Connecticut Medical Association was held at Hartford May 26 and 27. Among others, papers were read by Dr. M. M. Johnson on "The treatment of pus cases in appendicitis," and Dr. A. N. Alling on "Foreign bodies in the eye." The following officers were elected: President, Dr. R. S. Goodwin; vice-president, Dr. H. P. Stearns; secretary, Dr. Dr. J. La Pierre, treasurer, Dr. W. W. Knight.

Mississippi Valley Medical Association.—The next meeting of the Mississippi Valley Medical Association will be held in Louisville on Oct. 5, 6, 7 and 8, 1897. All railroads will offer reduced rates. The President, Dr. Thomas Hunt Stucky, and the Chairman of the Committee of Arrangements, Dr. H. Horace Grant, promise that the meeting will be the most successful in the history of the Association, and this promise is warranted by the well-known hospitality of Louisville and Kentucky doctors. Titles of papers should be sent to the secretary, Dr. H. W. Loeb, 3559 Olive St., St. Louis.

National Association of Military Surgeons.—The Association held its sessions at Columbus, Ohio, May 25 to 27. Dr. J. D. Griffith, Kansas City, Mo., was chosen president. The Doctor read a paper, before the Association, on the effects of the Krag-Jorgensen rifle with which he experimented at Forts Riley and Leavenworth for several years. His experiments show that loose earth is a good protection against these bullets, which penetrate steel, oak and solid earth. The numerous other papers presented will be published in the "Transactions." Kansas City, Mo., was chosen as the next place of meeting for 1898.

The Eleventh Congress of Anatomy was held at Ghent in April, with over 50 members in attendance from America, Japan and all the European countries. Schultze presented specimens of his "transparent embryos," for study of the skeleton, and described his method of preparing them. Laguesse described the histogenic development of the pancreas, and Unna the epithelial nature of nevus cells. Retzius called attention to a hitherto unnoticed convolution (apophysis) of the temporal lobe common to mammals, rudimentary in man. The most important of the numerous interesting contributions was K. v. Bardeleben's communication of the results of his extensive research in the Innervation of the Muscles. Henceforth new points for stimulus must be sought, instead of those now accepted, and he claims to have established a firm basis for future neurologic work. He has found a great number of hitherto unknown nerve ramifications in the walls and sheaths of the vessels, sinews, etc., some of which are so evident that it is remarkable that they have not been noted before. He states that each muscle nerve divides invariably into two branches, or the main stem sends out one branch abruptly. Each nerve also sends out one or more vasomotor nerves, usually just as it enters the muscle, rarely at its distal end. As the nerve reaches the muscle it sends out at least one returning branch toward the proximal end of the muscle. He also affirms the existence of an intramuscular plexus in all the larger muscles, and of dual innervation of the brachialis int., pectineus, lumbricalis III m., and III p., adductor magnus and hallucis, etc., mentioning thus eleven muscles with double innervation, some of which are already known. He queries whether the intramuscular plexus may not be the cause of the simultaneous innervation of a whole muscle. Further details are given in the *Deutsche med. Woch.* of June 3 and his report is to form Vol. 2 of his Handbook of Anatomy.

Medical Society of New Jersey.—The one hundred and thirty-first annual meeting was held in the United States Hotel, Atlantic City, June 22 and 23, 1897. President T. J. Smith presiding. There was a large attendance of the prominent physicians of the State. The president's address was on "The Problem of Dependency," in which he urged the establishment by the State of a colony for epileptics. The society appointed a committee to consider the matter with power to act. A very interesting discussion took place on the question "In the treatment of appendicitis is the free use of the knife necessary?" Both sides were ably presented, but the large majority of the speakers believed that the knife was used too frequently. Able reports were presented on each of the following departments concerning the progress made during the past year: Medicine and Therapeutics, Surgery, State Medicine and Hygiene, Diseases of Nose and Throat, Eye and Ear, Bacteriology. Papers were also read on "The present status of serum treatment of diphtheria," by Dr. McAlister; "Infantile diarrhea," by Dr. W. E. Darnell; "Some of the effects of constipation and their treatment," by Dr. J. Daland; Third Vice-President L. M. Halsey's essay was on "Headaches, auto-intoxication a factor." Dr. L. F. Bishop read a paper on "Some important points in the treatment of pneumonia," and Dr. R. C. Newton on "A criticism of modified milk and present dairy methods." The prize this year for the Fellows' Prize Essay, $100, was awarded to George Bayles, M.D., of Orange. Action was unanimously taken in favor of the Rush monument and against the antivivisection bill pending in Congress. The officers elected are: President, D. C. English, New Brunwick; first vice-president, C. R. P. Fisher, Bound Brook; second vice-president, Luther M. Halsey, Williamstown; third vice-president, John J. H. Love, Montclair; corresponding secretary, E. L. B. Godfrey, Camden; recording secretary, William Pierson, Orange, and treasurer, Archibald Mercer, Newark. The latter three were reëlected. The personnel of the Standing Committee remains unchanged, although the time of service is modified. It consists of Drs. William H. Izard and Stephen Pierson for three years, H. W. Elmer and Henry Mitchell for two years, and M. Lampson and Charles Young for one year. Hereafter the sessions will last three days instead of two. The next will be held at Asbury Park on June 28, 29 and 30, 1898.

Colorado State Medical Society.—The twenty-seventh annual convention of the Colorado State Medical Society was held at Denver June 15 to 17. Many rare old books on medicine and chemistry were exhibited, and also surgical instruments, etc., of bygone days. Among these was the medicine chest carried by Dr. Livingstone on his African explorations. The following papers were presented: "The ancient and modern instruments used in diagnosis and treatment of diseases of the stomach," C. D. Spivak, Denver; "A case of nasal sarcoma," W. W. Bulette, Pueblo; "Treatment of Pott's disease of the spine," G. B. Packard, Denver; "Relation of diseases of the ear to those of the throat and nose," John M. Foster, Denver; "Electricity in diseases of women," Minnie C. T. Love, Denver; "Progress toward accurate therapeutics," J. T. Melvin, Saguache; "Post-abortive sepsis, with report of cases," P. E. Hyrup-Pedersen, Denver; "Report of surgical cases," Leonard Freeman, Denver; "An operation for appendicitis and its after-treatment," W. A. Kickland, Loveland; "Prophylactic gynecology," R. R. Walker, Paris, Texas; "The radical cure of hernia, with report of a case," Frank Finney, La Junta; "The clinical uses of stethoscopic pressure," Henry Sewall, Denver; "Nasal polypi," P. F. Gildea, Colorado Springs; "Chronic lead poisoning," E. C. Hill, Denver; "A case of unilateral optic neuritis, complete recovery," George Cleary, Denver; "Removal of coal and powder stains from the cuticular integument," George W. Miel, Denver; "What infer-

ences may be drawn from cases of pulmonary tuberculosis reported to have originated in Colorado," S. G. Bonney, Denver; "Ichthyol in the treatment of diseases of the eye," D. H. Coover, Denver; "Medical customs of the Mexicans and Rocky Mountain Indians," M. Beshoar, Trinidad; "Puerperal mastitis," Laura Liebhardt, Denver; "Two cases of tumor of the cerebellum," H. T. Pershing, Denver; "Colorado Springs up to date," R. K. Hutchings, Colorado Springs; "Prophylactic treatment of tuberculosis," Frank E. Waxam, Denver; "Insanity of adolescence," Frank P. Norbury, Jacksonville, Ill.; "Difficulties in the diagnosis of the states of unconsciousness," J. T. Eskridge, Denver; "The relations of malpositions of the macula lutea to heterophoria," G. Melville Black, Denver; "Diagnosis, prognosis and treatment of mastoiditis," W. C. Bane, Denver; "Some practical points gathered from sources wise and otherwise," Will B. Davis, Pueblo; "The character of pulmonary cases sent to Colorado," W. H. Campbell, Colorado Springs; "Migraine in Childhood," H. F. Hazlett, Pueblo; "Chloroform in labor," Kate R. Lobinger, Denver; "Treatment of uterine fibroids," I. B. Perkins, Denver; "Inequality of pupils observed at an altitude of 10,250 feet," E. T. Boyd, Leadville; "How does our school system influence the health and development of the child?" E. Stuver, Rawlins, Wyo.; "Thirty-five cases of appendicitis, remarks," F. M. Cochems, Salida; "Puerperal eclampsia," J. D. Rothwell, Denver; "Present status of serum therapy," Alfred Mann, Denver; "Physical signs of acute bronchitis," J. N. Hall, Denver; "Galvanism in ulcerative keratitis," R. F. LeMond, Denver; "Operative treatment in dislocations and fractures," C. B. Nichols, Denver; "Importance of diet in infancy," H. B. Whitney, Denver; "Shock from a medical standpoint," E. P. Hershey, Denver; "Use and abuse of the uterine curette," H. G. Wetherill, Denver; "An abdominal section on an infant sixty-four hours old," E. J. A. Rogers, Denver; "Surgical treatment of diseases of the gall bladder," Neil Macphatter, Denver; "Observations deducted from three years' work in fractures," F. H. McNaught, Denver; "Dental reflexes affecting the eye and ear," J. R. Robinson, Colorado Springs; "Some controverted points in medico-legal matters," J. H. Pershing, Esq., Denver; "The effects on bone of the new bullet used by our army," J. D. Griffith, Kansas City; "Methods and results in 450 cases of fracture of the bones of the forearm," C. A. Powers, Denver.

PUBLIC HEALTH.

Mortality of the Leading Diseases in New York City.—The records of the last year show that 9,600 deaths have occurred through pneumonia, which heads the list; then comes consumption, with 8,250; diarrheal diseases, with 5,900 victims, followed by heart diseases, which killed 3,840; Bright's disease, 3,270; bronchitis, 2,880; diphtheria, 2,370, and apoplexy, 1,950. The total depopulation by death last year amounted to 72,780.

Money for Famine Sufferers.—Bishop James R. Thoburn, chairman of the Interdenominational Distributing Committee of India, has received $40,000 through Thomas Cook & Son, bankers. Thus far $100,000 has been cabled. The fund for the suffering has reached $180,000. Next week $40,000 more will be cabled, and it is expected that the amount that will aid in relieving the starving people will reach $200,000.

Scarlet Fever at Plainfield, N. J.—Only two new cases of scarlet fever were reported June 19. The city and State boards of health have traced the origin of the epidemic to a dealer, whose son while ill handled the milk. Under the supervision of the Health Inspector 500 quarts of milk ready for delivery were dumped into the sewer. The son was quarantined.

The Profession of Medicine a Department of the State.—Dr. C. F. Marks, the retiring president of the Queensland Branch of the British Medical Association proposed in his address that the medical care of the people should be part of a Public Health Department of the State. He suggested that a medical service for the whole colony be established, modeled somewhat on the lines of the Army Medical Service. The country should be divided into suitable districts having a senior and two junior men to each, with relieving officers and inspectors; salaries to begin at not less than £300 a year, and promotion to be by years of service or for distinguished service on ballot of all the medical officers. Dr. Marks assumes that there are about two hundred practitioners in Queensland, with, roughly, an average income of £1,000 a year, and the population is about 500,000. A sum of 8 shillings per head of population raised by government taxation would give ample funds for the scheme, allowing for fair superannuation allowances. Such a scheme, he maintained, was the only remedy for the present abuses of lodges, dispensaries and hospitals. At the annual conference of the Political Labor League of New South Wales on January 26, it was moved and carried, "That the care of the public health being among the first duties of the state, the practice of medicine should be a national service, the country to be divided into medical districts in charge of government medical officers, whose services shall be absolutely free." The proposal met with general approbation.

The Report of the German Commission on Plague.—The German Commission on plague at Bombay has issued a report which is dated March 19, and has appeared in the *Deutsche Medicinische Wochenschrift*. Professor Gaffky acted temporarily as the head of the commission until the arrival of Professor Koch from the Cape. It reached Bombay on March 8 and immediately began work in the Municipal Building, where a laboratory already had been provided by Dr. Bitter, the Egyptian Commissioner. There was some difficulty in obtaining an adequate supply of subjects, owing partly to the religious prejudices of the natives against postmortem examination and partly to the number of bodies taken by the commissions of the various foreign nations. But by the courtesy of the authorieties and of Dr. Bitter, a pupil of Professor Koch, arrangements satisfactory to the German Commission were eventually made. It was very soon found that the bubonic virus in the great majority of cases penetrated into the human body through small lesions of the skin. The glands of the neighborhood then began to swell and, when the quantity of virus absorbed was not too large, they were able to retain and to destroy it. When the bacilli were present in large quantities they made their way through the lymphatic glands and were then found everywhere in the blood in the internal organs. This was the typical form of bubonic septicemia. When a gland suppurated the bacilli might be removed from the body, but a dangerous septicemia caused by streptococci might result. The bubonic bacilli were present in large quantity in the patient's urine and feces, and in this way the virus might become spread everywhere. In another group of cases the virus was apparently absorbed by the lungs and under these circumstances primary pneumonia was commonly found, the lungs containing plague bacilli along with diplococci and streptococci. It is obvious how dangerous the sputum of such patients must necessarily be. Primary infection from the intestinal canal was not observed in any instance, but sometimes it appeared to arise from the tonsils. The low standard of living of the native population, their dirty habits, and their objection to hospital treatment were very favorable to the great spread of the epidemic, but the Europeans were almost entirely exempt. After the new Epidemic Diseases Act of 1897 came into operation the authorities took more active measures, and the special commission under the presidency of General Gatacre, displayed praiseworthy energy in providing for the compulsory removal of patients to the hospitals and for the isolation of suspicious cases in the so-called segregation camps. The report states that for the purpose of a bacteriologic examination it was not sufficient to take a single drop of blood from the finger, as this method gave a satisfactory result only when the bacilli were present in very large quantity. An agar culture must be made in doubtful cases; the colonies were usually developed after forty-eight hours. The bubonic glands should not be punctured for diagnostic purposes, because of the risk of admitting the virus into the blood vessels. The commission found that if blood serum obtained from either persons or animals convalescent from plague was mixed in a test tube with a culture of plague bacilli it had a specific influence on them. Cultures of other bacteria treated in this way became opales-

cent throughout their whole extent, but the plague bacilli formed small coagula which, in course of time, fell to the bottom of the test tube, leaving the supernatant fluid clear. This so-called "paralysis" of the bacilli was identical with that observed in the case of enteric fever and cholera and led to the inference that artificial immunization might be possible, but the commission has not yet finished its researches on this subject. The commissioners state that they were unable to express a definite opinion as to the efficacy of the immunization methods of M. Haffkine and Dr. Yersin.

NECROLOGY.

N. P. JOYNER, M.D., was drowned in the St. Lawrence River during the forenoon of June 23, while going to Grindstone Island to attend a patient. The oarsman who stood up to adjust a sail, capsized the boat, but by clinging to it saved his own life. Dr. Joyner leaves a widow and parents in Kingston, Canada. His body was recovered.

R. J. GOODMAN, M.D., Sparks, Ga., June 16.——Josiah H. Dodge, M.D., Pana, Ill., June 24, aged 76 years.——J. H. Tanner, M.D., New Haven, Ill., June 24.——Joseph J. Boynton, M.D., South Framingham, Mass., June 17, aged 64 years.——Chauncey Clark Robinson, M.D., Milwaukee, Wis., aged 76 years.

JOSEPH WAGGONER, M.D., Ravenna, Ohio, died June 6, from an attack of angina pectoris, aged 75 years. He was born in Richmond, Jefferson Co., Ohio; was a graduate of Cleveland Medical College and had been in active practice since 1847. He was acting assistant-surgeon, U. S. A., at Lincoln Hospital, Washington, in 1863 and a member of the AMERICAN MEDICAL ASSOCIATION, Ohio State Medical Society, Northeastern Ohio Medical Society and Portage Co., Medical Society.

BOOK NOTICES.

New Volume of Hare's System of Practical Therapeutics. A System of Practical Therapeutics by eminent Authors. Edited by HOBART AMORY HARE, M.D., Professor of Therapeutics and Materia Medica in the Jefferson Medical College of Philadelphia. Volume IV. Octavo, pp. 1065, with illustrations. Regular price, cloth, $6; leather, $7; half Russia, $8. Price of Vol. IV to subscribers to the System, cloth, $5; leather, $6; half Russia, $7. Price of the System complete in four volumes of about 4500 pages, with about 550 engravings, cloth, $20; leather, $24; half Russia, $28. Philadelphia and New York: Lea Brothers & Co., Publishers. 1897.

Dr. Hare's publications are so uniformly successful that it is almost enough to say of any book that he is the author of it to insure its favorable reception at the hands of the profession. In this case, where he appears as the editor of a system, his experience as an editor is not less valuable. It will be seen by the list that although a new corps of authors have been selected for this 4th volume, "the drum is in hands that know how to beat it." The great change that has taken place in therapeutics in the last few years makes it necessary for one to have at hand for reference the latest book on the subject, and among them the system edited by Dr. Hare has few if any superiors. In the present volume there are considered recent advances in hydrotherapy, tuberculosis, syphilis, typhoid fever and malaria, scarlet fever and measles, diseases of the nasal chambers, diseases of the uvula, pharynx and larynx. New facts in methods of treatment of diphtheria, asthma, bronchitis and whooping cough, abscesses and gangrene of the lungs, diseases of the heart, blood, liver, stomach and skin, and obesity, diabetes, peritonitis including appendicitis, etc.

Among the many valuable articles of interest we may refer especially to that of Dr. Metzer on the treatment of obesity, wherin he refers to his own experience in the treatment of obesity by the thyroid gland preparation, which experience he says is of the most satisfactory kind, none of his patients ever having had a complaint to make.

Dr. Parks in the treatment of diphtheria believes it is "no exaggeration to say that in diphtheria antitoxin we have a remedy superior to all others combined, and in no wise interferes with other treatment."

Dr. Ingals has an interesting article on the nasal affections, etc., mostly from a surgical standpoint.

We congratulate the editor on the publication of this great volume.

A System of Medicine by Many Writers. Edited by THOMAS CLIFFORD ALLBUTT, M.A., M.D., LL.D., F.R.C.P., F.R.S., F.S.A. Volume III. New York: The Macmillan Company. 1897. 8vo, cl., pp. 1176. Price $5.

Our cousins across the water have no intention of being left behind in the contributions to the medical literature of the period, and the present volume is a monument to the industry of the editor and the erudition of the contributors. The present bulky volume treats of the following subjects, viz.:

1. Epilepsy, actinomycosis, Madura foot.

2. Diseases of uncertain bacteriology: *a.* Not endemic. *b.* Endemic. Diseases not endemic are measles, scarlet fever, chickenpox, smallpox, mumps, whooping cough. Under this head also is included an essay by Dr. Craiger on the coexistence of infectious diseases. Under endemic diseases are described the climate diseases of India, typhus fever, dengue, yellow fever, dysentery, beriberi, Malta fever, epidemic dropsy, negro lethargy, frambesia.

3. Infective diseases communicated from animals to man: *a.* Glanders. *b.* Anthrax. *c.* Vaccinia. Foot and mouth disease, rabies, glandular fever.

4. Diseases due to protozoa: Malarial fever, hemoglobinuric fever, amebic dysentery. Diseases due to intoxications: Poisoning by food, grain poisoning, mushroom poisoning, snake poison and snake bite, alcoholism, opium poisoning and other intoxications, metallic and some other forms of poisoning, including poisonous trades. Diseases due to internal parasites: Psorospermosis, worms, platyhelminthes and nemathelminthes, bilharzia hematobia, hydatid disease.

Addenda: Sero-diagnosis of typhoid fever, supplement to the article "plague," addendum to "Yellow fever."

The volume is illustrated by 77 illustrations, 6 charts and map and a colored plate. The volume is fully equal in interest to its predecessors and is entirely trustworthy on the subjects mentioned.

The article of Dr. Joseph Fayrer on the climate and some of the fevers in India is a notable paper, and brings a vast amount of information which is not accessible to the majority of physicians.

In regard to climate, he quotes as appropriate to that of India Milton's description of the trying climate in "Paradise Lost":

> "For hot, cold, moist and dry, four champions fierce,
> Strive here for mast'ry and to battle bring
> Their embryon atoms."

The limit of space alone prevents us from quoting more extensively from the volume.

Hysteria and Certain Allied Conditions. Their nature and treatment, with special reference to the application of the Rest Cure, Massage, Electropathy, Hypnotism, etc. By GEORGE J. PRESTON, M.D. Illustrated. Philadelphia: P. Blakiston, Son & Co., 1012 Walnut St. 1897. 8vo. Cl., pp. 298. Price $2.00.

This book is to be commended for the reason that while there is no particular dearth of literature on the subject, recent literature is so scattered through the journals and the general text-books, that it requires labor to consolidate and bring it into view, although most of the text-books on practice of medicine as well as those on nervous and mental diseases contain chapters on the subject.

The author looks to the prevention of the disease with the most striking results. Much may be accomplished he says, "in the way of prophylaxis by the judicious education of body

and mind of children and great care should be exercised as to their physical development. The love of out-door life should be strenuously inculcated and every inducement to out-door exercise offered. The love of nature or fondness for out-door sports has saved many a life that was already predestined to hysteria. A great deal depends upon the systematic training of this class of children. Their education should be in competent hands and it should be supervised by some one conversant with the child's disposition.

The school hours should not be long but the child should be kept occupied while in school. Contests for prizes should so far as possible be discouraged. As the child grows older the reading should be carefully directed and sentimental literature be forbidden. There is much truth even if there is a little exaggeration in what Tissot says, "If your daughter reads novels at fifteen she will have hysteria at twenty." The development of the sexual life is a period especially to be watched, and children should have these matters explained to them as soon as they are old enough to understand. The morbid curiosity surrounding this physiologic question should be early replaced by a clear understanding of the principles of reproduction. It should be the great effort of those directing the education of the class of children of which we have been speaking to avoid all emotionalism and sentimentalism, to inculcate healthy views of life, to suppress the tendency to excess in matters social or religious and to implant the principles of sound morality."

"The vigorous out-door life of the English has developed a race in which there is very little hysteria, while the more artificial excitable life on the Continent has had the opposite effect."

Concerning the treatment of hysteria by hypnotic suggestion the author says that this treatment has "never realized the expectations that the early attempts in this direction promised."

As to drugs the author is somewhat pessimistic, although the bromids and the old fashioned anti-spasmodics were given an appropriate place.

Altogether we think the book a useful and valuable one on those subjects on which it treats.

Aphasia and the Cerebral Speech Mechanism. By WILLIAM ELDER, M.D., F.R.C.P. With illustrations. London: H. K. Lewis, 1897. 8vo. cl. pp. 259. Price 10s. 6d.

The greater part of this work consists of the (Edinburgh) University lectures of the author. It goes far to elucidate a difficult but very interesting subject. The chapters are;

1. Reception, retention and production of speech.
2. Reception, retention and production of speech roots.
3. Mechanism of speech as shown by its disorganization.
4. Clinical varieties of aphasia.
5. Auditory aphasia.
6. Conduction of aphasia.
7. Visual aphasia or word blindness.
8. Aphemia motor aphasia, Broca's aphasia.
9. Agraphia aphasia.
10. Disturbance of the music faculty, amusia, etc.
11. Aphasia from the surgical point of view.

The volume concludes with the bibliography and index.

The author points out how important it is for the surgeon to possess an exact knowledge of aphasia. He indicates that the study of aphasia will lead to correct knowledge which will clear up diagnosis of many doubtful cases. The book is full of interest, is printed on fine paper and in large type. We commend it.

Manual of Static Electricity in X-Ray. By S. K. MONELL, M.D., 8vo, pp. 614.

Since the translation of Arthuis book in 1871, by Etheridge there have been few English monographs on this branch of electricity.

The author has taken advantage of the fact that the static machine affords the means of exciting the X-ray within a Crookes tube and has brought into the volume the reports of many cases to sustain his side of the question, besides that the careful technics given by the author will give new ideas to many who had considered static electricity of little or no therapeutic value. Chapters 10 and 11 are devoted to X-ray photography, to X-ray effects in general and detailed directions are given for its management, but the fact remains the same that the authentic photography, while frequently individually successful, has no success in the long run, but most persons who have used it have come to the conclusion that it permits many mistakes and much chagrin for people's benefit by employing a professional photographer to do the work, and in our large cities that is now entirely practicable, but before it becomes generally used the price must be reduced, as it is effectually necessary to make the exposure on three sides in order to obtain a correct notion of the exact nature of the case. For example, the writer a short time since in a course of treatment of the fracture of the thigh just below the trochanters, had a negative taken from before backward, which indicated a non-union, whereas in point of fact there was a vicious union which required to be chiseled before the fragments could be separated, the spur bone having formed exactly behind the overlap fragment. The exposure should be made from behind forward and from before backward in each case. Thus two negatives are always required, and a third one from a lateral point of view is sometimes desirable. All this is expensive at present rates, but it will doubtless be reduced in time.

The Disorders of Digestion in Infancy and Childhood. By W. SOLTAU FENWICK, M.D., B.S. Lond., M.R.C.S. Physician to out-patients at Evelina Hospital for Sick Children. 8vo, pp. 377. London: H. K. Lewis; Philadelphia: J. B. Lippincott Co. 1897.

At the beginning of summer the general practitioner and those especially devoted to diseases of children are particularly interested in all books of this class, especially if they are likely to furnish any desirable information which may lead to better results in the prevention and treatment of infantile diseases of the digestive organs, so rife during midsummer. The book, which is therefore a timely one, is written in admirable style, and the teachings of the author are judicious. He begins with the anatomy and physiology of the stomach of the infant and naturally the bacteriology of the subject occupies considerable attention, and afterward the diet in infancy and the disorders of digestion are taken up.

Photographs and drawings have been used in illustrating the book, which is up to date and well worthy of a place in a physician's library.

The publisher has done his part well. The illustrations are not mere copies of former books on the subject, but seem to be original.

MISCELLANY.

Tragedy at Bologna.—Dr. Augusto Obici, who recently went from Modena with the highest reputation to fill the chair of pathologic anatomy in the University of Bologna and had delivered his inaugural discourse to a delighted audience of students and professional colleagues, committed suicide by throwing himself from the Aposa bridge into the river beneath, a distance of 100 feet. Death was immediate. Professor Obici was just 30 years of age and had been suffering from profound neurasthenia.—London *Lancet*.

Vicarious and Other Hemorrhages.—Chipault recently treated hysteric bleeding from the mamma in a woman of 40. He mentions his astonishment at finding the mamma apparently normal under the blood-stained cloths. Strümpell describes some cases of spitting of blood after traumatism that were ascribed to tuberculosis until discovered to proceed from the

upper part of the throat. Hermann also describes cases of sudden vomiting of blood, mixed with mucus and saliva, in hysteria, or consecutive to a disappointment, such as the non-arrival of a letter. But still more peculiar is a case reported in the *Gaz. Méd. de Liège* of April 22 in which menstruation occurs the 28th of each month through the thumb. The woman, 37, had had double salpingectomy performed in 1890, which caused the cessation of the menses for four years, when suddenly her thumb began to bleed, and blood oozed from it continuously for five days, when the hemorrhage ceased, to recur again the next month and each month since, at the same time and place.

Moscow International Congress.—The Committee in charge of the Section of Military Medicine announce that the halls and rooms of the Moscow Clinic of Surgery are at the disposal of the members of the Congress who take part in the proceedings of the Section of Military Surgery, for free lodgings. The rooms have been vacated, repainted, disinfected, etc., and will accommodate seventy-five, with separate rooms for eighteen and the rest in halls with four to eight beds. Those desiring to take advantage of this invitation will please communicate without delay with Prof. Lewschine, Moscow, Volhonka, maison Mihalkoff.—*Progrès Méd.*, June 5.

Beer and Athletics in Life Insurance.—At the annual meeting of Medical Directors of Life Insurance Companies in the United States recently held in New York city Dr. Gordon W. Russell of Hartford, Conn., in a paper on the "Selection of Lives for Insurance," introduced the subject of beer drinking. He classed the users of this beverage as poor risks. In the course of the discussion it came out that the mortality is strikingly low among brewers in early years. Up to the age of 40, or thereabouts, brewers seem to be about as good risks as anyone else. After that age the mortality rises high and at 50 or 60 about three brewers may be expected to die where one other person dies. Under the subject of "Albuminuria," Dr. F. C. Young of the Mutual Benefit Life Insurance Company said that football, bicycling and other athletic exercises greatly impaired a person as a risk for a life insurance company. He said he had observed that after athletes had been engaged in their sports the presence of albumin was discovered in the system, and that albumin was found in the systems of athletes much more than in persons unaccustomed to violent exercise.

Improved Pessary.—Pinna-Pinta's pessary is described in the *Gaz. degli Osp. e delle Clin.*, of May 30, as consisting of two parts, an aluminum endo-uterine canula and a rubber-covered vaginal part. A special sound accompanies it which can be passed through it into the uterus for irrigating and therapeutic purposes without disturbing the apparatus. It holds the uterus in a normal position when inclined to become displaced; it ensures drainage of the uterine cavity; it stimulates the circulation and exerts a favorable excitation on the uterine contractions, which is of great benefit in chronic uterine or peri-uterine inflammations and in aplasia and atrophy of the internal genital organs. It has always been well tolerated, some of his patients wearing it for months at a time without experiencing any inconvenience from its use. In every case treated, the sacrolumbar pains ceased, or the dysmenorrhea, leucorrhea or whatever the symptoms that had indicated it, and all the objective symptoms also disappeared. He recommends it in high terms.

Intestinal Occlusion by Calculi formed of Salol.—A woman with gastro-intestinal disturbances, took 4 to 5 grams of salol a day in 50 centigram doses, for ten days, when she developed symptoms of complete intestinal occlusion, which resisted the most energetic treatment, including electricity, for thirty-six hours. In the evacuation then secured a dozen calculi were found, all formed of salol which had been taken in the form of a powder, and had evidently been dissolved in the intestines and recrystallized. The largest weighed 2 grams, with a total weight of 4 grams. "The case shows the possibility of intestinal lithiasis of therapeutic origin, and also adds another to the already numerous inconveniences of intestinal antisepsis."—*Bulletin de l' Académie de Médecine*, March 30.

No Consolidation.—Bellevue Hospital Medical College and the Medical Department of the University of the City of New York will not amalgamate as was recently announced. Bellevue will build a new medical college at Second Avenue and Twenty-sixth Street, adjoining the Carnegie Laboratory. The estimated cost is $100,000 and the building is to be completed by Jan. 1, 1898.

Gleanings.—Camphor found effective in suppressing the lacteal secretion. Herrgott administers it in powders of 20 centigrams, three times a day, with remarkable success.—*Semaine Med.*, June 2. Airol announced to be efficacious as an antidiarrhetic, 11 cases cured. Doses from 20 to 80 centigrams in two to four powders an hour or so apart in one case. No unfavorable results were observed.—*Gaz. d. Osp. e d. Clin.*, May 30. A Belgian physician insists that the only effective prophylaxis of epidemics of measles is to close the schools at once when a single case is discovered and keep them closed for nine to twelve days, when all exposed will have had a chance to develop the disease. He adds that the germs in the building will die of themselves in that time.—*Sem. Méd.*, June 2. Radical operation of a 4-hour-old infant with hydrocephalus for a cerebral hernia into a tumor extending down the back as large as half the head. Prompt recovery.—*Wien. klin. Woch.*, May 27.

Societies.

The Monmouth County (N. Y.) Anatomical and Pathological Society was organized in Long Branch June 16.——The Lucas County Medical Society held its last meeting for the summer at Toledo, Ohio, June 18.——The Academy of Medicine and Surgery, Richmond, Va., held a session June 22.——The surgeons of the Southern and Alabama Great Southern Railways met at Lookout Mountain June 29 and 30.——The Elkhart County Medical Society held a session at Elkhart, Ind., June 17.——The one hundred and thirty-first annual meeting of the Medical Society of New Jersey was held at Atlantic City, June 21 and 22.——The Delaware Medical Society held its annual session at Muncie, Ind., June 22.——The Franklin County Medical Society met at St. Thomas, Pa., June 22.

Osteopathy in Court.—A conviction which was had Jan. 27, 1897, of an osteopath for violation of the Ohio law, has been reversed by the court of common pleas of Summit County, as per report in the Ohio *Legal News* of June 19, 1897, the case being styled Eugene Eastman v. The State of Ohio. The accused was a graduate of the American School of Osteopathy of Kirksville, Mo., who had located at Akron, Ohio. For pay, he undertook to treat a case of paralysis, without prescribing, directing or recommending the use of any drug or medicine. This raised the question whether the act of kneading and rubbing the body with the naked hands, for compensation and for the treatment and cure of bodily disorders, is a criminal act under such a law regulating the practice of medicine as that of Ohio. It was contended, on behalf of the State, that the act within the term "or other agency," in the provision of the Ohio law that "any person shall be regarded as practicing medicine or surgery who shall, for a fee, prescribe, direct or recommend for the use of any person any drug or medicine *or other agency* for the treatment, cure or relief of any wound, fracture or bodily injury, infirmity or disease." But the court holds that the words "other agency," although comprehensive, must mean something in the same general sense that medicines or drugs is an agency, and that if it was the intention of the general assembly to prohibit the practice in the State of osteopathy, clairvoyance, mind healing, faith cure, hypnotism, massage and Christian science it should have been specifically mentioned and not left to mere inference from the general

words "other agency." Consequently, it holds that in the particular acts set forth there was no violation of the statute mentioned.

Washington.

A SENATE BILL POSTPONED.—The bill to regulate the sale of poisons in the District of Columbia, S. 470, originated by the Medical Society, was called up for passage on the 21st ult., but by request of Senator McMillan was recommitted for future consideration to the committee. It is hoped that an early and favorable action will be had on this bill.

MEDICAL AND SURGICAL SOCIETY.—At a meeting of the Society held on July 20, Dr. McKimmie read a paper on "Hypertrophy of the Lingual Tonsil and its Treatment." He referred to the location and anatomy of the gland and the relation of hypertrophy to throat symptoms, as shown by Lennox Brown in 1880 and since indorsed by recent prominent throat specialists. He gave the classification of diseases of the tonsil and its relation to the varix at the base of the tongue. He also referred to the relation of age and sex and general debility as predisposing causes. He also suggested a neurotic origin of the disease. He recommends treatment with nitrate of silver, one or two drams to the ounce, prefers the use of the cold snare to that of the guillotine or cautery. The paper was discussed by Drs. J. D. Morgan, Chas. W. Richardson, Fred. Sohon and others. Dr. J. F. Moran read a paper on "Cerebellar Tumors," and gave the history of a case where two exploratory operations had been performed for the relief of intracranial pressure. Previous treatment by potass. iodid. had failed. The operation gave temporary relief. He called special attention to the absence of distal localizing symptoms in the case and the improvement of locomotion and incoördination, notwithstanding the fact that half of the right lobe was destroyed and considerable inflammatory changes were present in the adjacent lobe. No history of syphilis could be established, though tuberculosis contaminated the maternal relatives. He referred to the symptoms of cerebral tumors and the treatment recommended by recent authors. Notes and specimen from the autopsy were presented. Discussion followed by Drs. Chas. W. Richardson, Allen, Bishop and W. P. Carr. Dr. E. Sotheron presented an axis traction obstetric forceps which he had devised, and detailed its special advantages.

THE COLUMBIAN MEDICAL SCHOOL HOSPITAL.—The Trustees of the Columbian University have given the Medical Department a large building, formerly the Preparatory School, for the purposes of a hospital. The building is being remodeled and provided with wards, private rooms and operating amphitheater. The hospital will be under the exclusive direction of the Medical Faculty, and will be ready for use by October 1. A large amount of money has already been subscribed to make the necessary changes and the improvements are in charge of a Committee of the Faculty, consisting of Drs. J. Ford Thompson, W. W. Johnston, A. E. de Schweinitz and D. K. Shute. The hospital building is located within fifty feet of the Medical School.

THE PUBLIC SERVICES.

Army Changes. Official List of changes in the stations and duties of officers serving in the Medical Department, U. S. Army, from June 19 to June 25, 1897.

Col. William H. Forwood, Asst. Surgeon-General U. S. A., is granted leave of absence for three months, to take effect about July 1, 1897, with permission to go beyond sea.

Navy Changes. Changes in the Medical Corps of the U. S. Navy for the week ending June 19, 1897.

Surgeon E. Z. Derr, ordered to duty with new naval rendezvous, New York.

P. A. Surgeon J. F. Urie, detached from marine rendezvous, Boston, June 24, and ordered to the "Wabash" same day.

Surgeon F. B. Stephenson, detached from the "Wabash" June 24, and ordered to marine rendezvous, Boston, same day.

Asst. Surgeon W. B. Grove, ordered to the naval laboratory, New York, June 21.

P. A. Surgeon L. W. Spratling, ordered to the naval hospital, Norfolk, July 1.

CHANGE OF ADDRESS.

Alderson, J. C., from 107 Throop St. to 426 Van Buren St., Chicago, Ill.; Adams, Samuel S., from Washington, D. C. to Mountain Lake Park, Md., for July, August and September.

Buckmaster, S. B., from Hudson to Janesville, Wis. After August 1 address will be Lake Geneva, Wis., where he assumes Superintendency of the Oakwood Sanitarium.

Calderon, E., from 607 to 526 Sutler St., San Francisco, Cal.; Clarke, B. F., from 634 to 1009 Sutler St. San Francisco, Cal.; Cook, J. F. D., from Dolend to Clark, South Dakota.

Davis, J. S., from Charlottesville. Va. to Box 8, Oscean Springs, Miss.; Dougan, W. McKay, from Whiterock, Nev. to Otoe, Oklahoma; De Jong, C., from Grand Rapids, Mich. to Edgerton, Minn.

Eagan, J. A., from Chicago, Ill. to Sec'y Illinois State Board of Health, Springfield, Ill.

Gihon, A. L., from New York, N. Y. to Sykesville, Md.; Gentsch, D. C., from Washington, D. C. to New Philadelphia, Ohio.

Holland, J. W., from Philadelphia, Pa. to Care of The Checkley, Prout's Neck, Me.

Judd, C. E., from Chicago, Ill. to 618 Kansas Av., Topeka, Kan.

Lewis, Bransford, from 1006 Olive St. to the Century Building, St. Louis, Mo.

Morse, E. R., from 4356 to 4337 Berkeley Av., Chicago, Ill.; Martin, W. E., from 51 W. Fort to 40 Howard St., Detroit, Mich.

Newton, C. S., from Winfield to Altamont, Kan.

Quigley, J. M., from 44-6th St., 213 Powell St. San Francisco, Cal.

Stoye, J. P., from Chicago to Mayville, Wis.; Scates, D. W., from Waxahachie, Texas, to Martin, Tenn.

Tisdale, D. L., from Chicago, Ill. to Alameda, Cal.; Thomas, E. W., from 636 Sutler St. to 1148 Market St., San Francisco, Cal.

Warne, F. C., from 1105 75th St. to 939 72d Place, Chicago, Ill.

LETTERS RECEIVED.

Aaron, Charles D., Detroit, Mich.

Boehringer, C. F. & Soehne, New York, N. Y.; Bulkley, L. Duncan, New York, N. Y.; Bausch & Lomb Opt. Co., Rochester, N. Y.; Burns, W. W., Polo, Ill.; Bell, A. N., Brooklyn, N. Y.; Boyd, E. T., Leadville, Colo.; Barton, James L., White, Tenn.

Caspers, P., Chicago, Ill.; Chatterton, A. S., Peterson, Iowa; Chambers, J. H. & Co., St. Louis, Mo.; Clark, C. F., Columbus, Ohio; Crooker, George H., Providence, R. I.

Denmark, A. G., Lorain, Ohio; Daniel, J. B., Atlanta, Ga.; Dixon, W. A., Decatur, Ill.; de Schweinitz, E. A., Washington, D. C.

Easterwood, A. Y., Cleburne, Texas; Edson, Carroll E., Denver, Colo.; Egan, J. A., Springfield, Ill.

Forbes, S. A., Louisville, Ky.; Froshang, S. J., Norse, Texas.

Galbraith, Thomas S., Seymour, Ind.; Graham, Jennie M., Decatur, Mich.; Graham, J. W., Denver, Colo.

Hardin, P. D., Evanston, Ill.; Hummel, A. L., Advertising Agency, New York, N. Y.; Hamilton, H. Dewitt, New York, N. Y.; Hawley, A. W., Hospital, Ill.; Hart, T. B., Raton, N. M.; Haish, Carl F., Webster, S. D.; Hines, Chas., Jacksonville, Ore.; Hall, L. S., Clinton, Mo.

Jowers, J. G., Smith's Fork, Tenn.

Keokuk Medical College, Keokuk, Iowa.

Longmans, Green & Co., New York, N. Y.

McNamara, F. W., Chicago, Ill.; McCormick, Horace G., Williamsport, Pa.; McLaughlin, W. E., Willmar, Minn.; Mays, Thomas J., Philadelphia, Pa.; Musser, J. H., Philadelphia, Pa.; McCreery, New Castle, Pa.

North, L. G., Tecumseh, Mich.

Oaks, J. F., Chicago, Ill.; O'Connor, W. F., (Mrs.) Denver, Colo.

Pick, Albert, Hyannis, Mass.; Patterson, D. H., Manhattan, Mont.

Robinson, R. E., Frederika, Iowa.; Rice, W. H., Evanston, Ill.; Rosse, Irving C., Washington, D. C.; Reed, W. W., Fowler, Colo.

Salisbury, J. H., Chicago, Ill.; Shattuck, F. C., Boston, Mass.; Sebago Resort, Sodus, Mich.

Taylor, James E., Ovid, Mich.

Wenger, W. H., Baltimore, Md.; Willard, J. W., Celina, Texas.

PAMPHLETS RECEIVED.

Action of Taka-Diastase in Various Gastric Disorders, By Julius Friedenwald, A.B., M.D. Reprinted from N. Y. Medical Journal.

Cutter's Stem Pessary, etc. By Ephraim Cutter, LL.D., M.D. Pamphlet, illustrated, 50 pages, Ephraim Cutter, New York. Price 25 cents.

Individual Credits. By James G. Calhoun. 32 pages. J. S. Babcock, New York.

Influence of Anesthesia on the Surgery of the Nineteenth Century. By J. Collins Warren, M.D., LL.D. Illustrated. 25 pages. Reprinted from the Transactions of the American Surgical Association. 1897.

Necessity of Special Institutions for the Treatment of Pulmonary Tuberculosis. By A. C. Klebs, M.D. Reprinted from the Tri-State Medical Jour. and Practitioner, St. Louis.

The Pre-Apoplectic State, etc. By Ephraim Cutter, LL.D., M.D. Pamphlet, illustrated. Ephraim Cutter, New York. Price 25 cents.

Pseudo-Tuberculosis Hominis Streptotricha. By Simon Hexner, M.D. Reprinted from the Johns Hopkins Hospital Bulletin, No. 75.

Report (thirty-six annual) of the Cincinnati Hospital for 1896.

Resection of Arteries and Veins Injured in Continuity—End-to-End Suture. By J. B. Murphy, M. D. Illustrated. 32 pages. Reprinted from the Medical Record, New York.

Substitute Feeding of Infants. By T. M. Rotch, M.D. Reprinted from Pediatrics, 16 pages. J. B. Lipincott & Co. Philadelphia.

Surgery of the Gasserian Ganglion, with Demonstration and Report of Two Cases. By J. B. Murphy, M.D. Illustrated. 12 pages. Reprinted from the Western Medical Review.

Tiebel's Official Handbook of Spas, Watering Places and Health Resorts. By H. C. Tiebel, M.D. Würzburg. Illustrated. 86 pages. Charles Letts & Co. London.

University of Illinois, College of Physician and Surgeons. Catalogue. 1896-97.

University of Minnesota, College of Medicine and Surgery, Catalogue. 1896-97.

University of Missouri, Catalogue. 1896-97.

University of Southern California, College of Medicine. Announcement for 1897-98.

Waters Within the Earth and Laws of Rainflow. By W. S. Auchincloss, C.E. Illustrated. 45 pages. W. S. Auchincloss, Philadelphia.

Trade Pamphlets.

Antitoxins, etc. The G. F. Harvey Company, Saratoga Springs, N. Y.

Asepsis Secundum Artem. Johnson and Johnson, New Brunswick, N. J., Glen Springs, Watkins, N. Y.

Medical and Surgical Plasters. J. Ellwood Lee Co., Conshohocken, Pa.

Office Appliances. The Globe Company, Chicago.

Pamphlets. C. F. Boehringer and Soehne, New York.

Pamphlets. Schering and Glatz, New York.

Zumo-Anana. Zumo-Pharmacal Co., St. Louis.